Exhibit 105

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

EXPERT REBUTTAL REPORT OF [redacted]

NOVEMBER 12, 2021

U.S. Securities and Exchange Commission v. Ripple Labs, Inc., Bradley Garlinghouse, and Christian A. Larson

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1. INTRODUCTION

1.1. Qualifications

1. I am a Director at [redacted] LLC ("[redacted]"), a forensic data analytics and economic consulting firm. My work with [redacted] has included assisting various government agencies with investigating possible securities violations and financial fraud in the digital assets space. This experience includes analyzing fraudulent blockchain investment schemes, tracking money laundering on the blockchain, and discovering and proving manipulative trading activity related to digital assets. I have written an expert report filed for the Securities and Exchange Commission ("SEC") in [redacted] have provided expert consulting in blockchain, digital assets, and forensic data analytics for private companies, federal agencies, and foreign securities regulators. My work providing expert consulting related to digital assets has ranged from examining documents and representations related to initial coin offerings to providing detailed analysis of blockchain data, including flows of funds on the blockchain, smart contract activity, on-blockchain trading data, and decentralized finance platforms. I have also developed and managed the development of scripts and algorithms to process and analyze large collections of blockchain data.

2. In addition, I am the Founder and Managing Director of an investment partnership, [redacted] LLC. [redacted] began operating in 2016 and legally formed in 2017. [redacted] LLC was primarily focused on making investments in the digital asset space, and since its founding I have profitably allocated capital to many digital asset investments.

In addition to analyzing hundreds of companies, projects, coins, and tokens in the digital asset space, I have developed and executed successful cryptocurrency arbitrage strategies. These activities have given me an intimate familiarity with many different participants in the digital asset space including retail users and traders, institutional investors, cryptocurrency miners, software developers, entrepreneurs, and venture capital investors. I have practical firsthand experience with using blockchains as well as the trading platforms, software platforms, and institutional products built on top of them. In addition to my experience in digital asset investments, I have 19 years of experience evaluating and investing in companies, public equities, commodities, bonds, currencies, and derivatives of those asset classes. I have managed automated quantitative strategies as well as discretionary investment strategies across many different asset classes, with emphasis on equities and equity options. As part of this work, I routinely analyze the investment thesis – that is, the relative risks and rewards of an investment and the circumstances in which the investment makes the most sense – for hundreds of investments, including digital assets. I received a [redacted] and an [redacted]

3. Appendix E to this report contains my curriculum vitae with more details about my professional background. I am a salaried employee of [redacted] is compensated by the SEC at a rate of $435 per hour for the time I spend on this matter. I have been assisted by additional staff members of [redacted] to analyze data and documents related to this matter. My conclusions are my own and are based on my independent analysis and review of their work. [redacted] is compensated by the SEC at a rate of $520 per hour (Engagement Director), $330 per hour (Data Scientist), and $235 per hour (Data Analyst) for their work.

1.2. Background

4. I have been engaged by the SEC to provide expert testimony in the matter of *Securities and Exchange Commission v. Ripple Labs, Inc., et al.* pending in the United States District Court for the Southern District of New York. On October 4, 2021, I submitted a report to this Court titled "Expert Report of [redacted]" ("Original Report"), which independently analyzed and rendered opinions on the perspective of a reasonable purchaser of XRP on Ripple's statements, actions, and product offerings throughout the period from 2013 to the filing of the SEC's Complaint on December 22, 2020 ("Issuance Period"). The SEC has now retained me to review and offer an opinion in this report ("Rebuttal") regarding certain expert reports that were also submitted on October 4, 2021 by experts engaged by Defendants. The specific matter for which I have been retained by the SEC to offer a rebuttal opinion is described in the "Assignment" subsection at the beginning of each Section of this Rebuttal.

1.3. Documents Considered

5. Appendix D to this report contains a complete list of documents and data sources I considered, including those I relied upon, in completing the analysis in this report. Included in that list are public statements and press releases from Ripple and company insiders, transaction data related to what Ripple advertises as its core software product – a product for financial institutions which Ripple calls On-Demand Liquidity ("ODL") (formerly known as xRapid), and publicly available blockchain data for the XRP Ledger.

2. REBUTTAL REGARDING DEFENDANTS' EXPERTS' OPINIONS RELATED TO ODL

2.1. Assignment

6. In this Section, I have been asked by the SEC to review and comment on the opinions in Professor Osler's Report, Professor Ferrell's Report, and Professor Adriaens' Report as they relate to Ripple's ODL product. Specifically, I have been asked to opine on their opinions related to ODL that during the Issuance Period: i) ODL transaction volume was growing and ODL transaction costs were "decreas[ing] over time" (Professor Ferrell), ii) ODL was a "less costly" substitute for traditional, fiat cross-border payments and a "viable option" for cross-border payments (Professor Osler), and iii) Ripple's payment of rebates and incentives to ODL customers was consistent with strategies employed by technology companies to grow their customer base (Professor Ferrell and Professor Adriaens).

2.2. Summary of Findings

7. Based on my analysis of documents related to ODL, the Ferrell Report's analysis of ODL economics, and my professional experience as a trader and investor in both digital asset and conventional markets, my opinion is that none of the Defendants' experts' opinions listed above in Section 2.1 are correct, for reasons set forth below in this Section.

8. First, while ODL volume grew from its inception in October 2018 to its peak in May 2020, it fell precipitously in June 2020 by over 60% and did not recover by the end of the Issuance Period. Additionally, while ODL transaction costs – a critical factor for whether ODL was economical for money transmitters such as MoneyGram – initially decreased, they increased substantially in the most recent quarter of the Issuance Period.

9. Second, it is uneconomical for financial institutions to use ODL for cross-border payments absent significant subsidies provided by Ripple. Applying ODL cost figures from

Professor Ferrell's own report, it is far more expensive for a money transmitter to send cross-border payments using ODL as compared to using traditional fiat channels. In addition, the true and unsubsidized costs of using ODL are even higher than the figures presented in the Ferrell Report because his analysis i) incorrectly calculates foreign exchange ("FX") spread data and thereby underestimates FX costs, ii) underestimates exchange trading fees due to the existence of subsidies paid by Ripple, iii) ignores the impact of additional significant subsidies paid by Ripple to market makers, and iv) neglects the effects of other financial benefits to ODL participants paid by Ripple such as compensation for "slippage"[1] encountered by money transmitters. Combined with the upward trajectory of ODL costs at the end of the Issuance Period, this suggests that during the Issuance Period there was no indication that ODL costs were likely to decrease to a point where money transmitters would have an economic reason to adopt ODL, absent receiving incentives and subsidies from Ripple. That ODL was uneconomical during the Issuance Period was confirmed by the example of MoneyGram, a U.S.-based cross-border money transmitter that accounted for 95% of all ODL volume during ODL's peak volume in May 2020. MoneyGram's Chief Financial Officer testified that ODL "would not have been viab[le] without subsidies."[2]

10. Third, while Ripple's use of subsidies and incentives to grow its ODL user base had short-term success in increasing ODL transaction volume, this volume was not sustained because ODL does not have an economically compelling value proposition for cross-border payments. For example, MoneyGram ramped up ODL transactions due to incentives from Ripple[3] and accounted for 95% of ODL volume at its peak in May 2020, but then dramatically

[1] "Slippage" is a trading term referring to trading losses incurred from executing trades against a bid-ask spread; it is the difference between the displayed market price of a trade and the actual price upon which the trade was executed.
[2] Deposition of MoneyGram CFO Lawrence Angelilli, August 3, 2021 at 194-195.
[3] Deposition of MoneyGram CFO Lawrence Angelilli, August 3, 2021 at 196-197; Mr. Angelilli states, "MoneyGram was extremely interested in the earning stream that would come from this [incentives] in the short term."

reduced its ODL transactions thereafter.[4] As long as ODL-related costs remain high compared to the cost of using traditional fiat payment solutions, Ripple's use of subsidies and incentives will not help it to achieve a profitable product offering, although it may provide a narrative that could increase the speculative demand for and price of XRP.

2.3. Defendant Experts' Methodology, Findings, and Shortcomings Related to ODL

2.3.1. Summary and Shortcomings of the Methodology and Findings Related to ODL in the Report of Professor Ferrell

11. In Section IV.B., the Ferrell Report makes four findings related to MoneyGram's involvement with ODL: i) MoneyGram transferred a significant and increasing amount of XRP across payment corridors using ODL, ii) ODL is "Technically Feasible," and its efficiency improved over time, iii) the cost of MoneyGram's cross-border transactions through ODL decreased over time, and iv) Ripple's incentives and subsidies to ODL customers to encourage their adoption of ODL are consistent with how other companies use incentives to grow their customer base.

12. To support his first three points regarding ODL, Professor Ferrell cites and summarizes various statistics about ODL but in some instances he omits key information that casts significant doubt on his assertions. For example, Professor Ferrell argues, "MoneyGram's use of ODL increased over time, reaching a high of $410 million transferred in April 2020."[5] However, the reality is that while MoneyGram's ODL volume increased from July 2019 to May 2020, it dropped precipitously in June 2020 and did not recover during the Issuance Period, as seen in Figure 2 in Section 2.5.2.

[4] See Figure 2; ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162.
[5] Expert Report of Allen Ferrell, October 4, 2021 at 74.

13. In a similar manner, to support the assertion that "The Cost of Using ODL Decreased Over Time as the XRP Market Liquidity Improved,"[6] Professor Ferrell created a list of the average change in ODL costs across different payment corridors[7] over a 16-month period, August 2019 to December 2020.[8] While the average costs of ODL transactions decreased during that time period, ODL costs actually increased in all the payment corridors analyzed during the last quarter of 2020, the most recent period of Professor Ferrell's analysis (see Table 3 in Section 2.6.2). To provide a clearer picture, Professor Ferrell should have acknowledged that the cost of ODL decreased initially, but reversed course and started to increase in Q4 2020. This fuller description, among other things, casts doubt on the prospect that ODL costs can decrease to the point where money transmitters will ever find ODL to provide an economically viable value proposition for them to adopt ODL without subsidies, as discussed in Section 2.6.2.

14. The Ferrell Report provides justification for his final point regarding ODL – that Ripple's ODL rebates and incentives to MoneyGram were "not unique and generally used to encourage the adoption of new technology/products"[9]– using analogies from other industries such as payment processors, trading platforms, and online retailers.[10] However, even though it can be rational for some businesses to offer incentives to drive adoption of particular products, this does not necessarily apply to all products in all circumstances. Defendants' own expert Professor Adriaens opines that a prerequisite for scaling a product through price discounts is for it to have a strong value proposition, which includes having favorable economics to the alternative solution, which ODL does not have, as discussed in Section 2.6.4.

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[6] id. at 75.
[7] Professor Ferrell assumes the reader understands the term "payment corridor" which refers to simultaneously exchanging currency (e.g. USD to EUR) and moving currency (e.g. from the US to Europe).
[8] id. at Exhibit 20.
[9] id. at 77.
[10] id. at 77-80.

2.3.2. Summary and Shortcomings of the Methodology and Findings Related to ODL in the Report of Professor Osler

15. The Osler Report claims that "Ripple's ODL product provides an economically sound option for making cross-border and cross currency payments."[11] Specifically, Professor Osler writes, "ODL provides fast, secure, transparent, and ***low-cost*** cross-border and cross-currency payments [emphasis added],"[12] and specifies that "[r]elative to current payment systems with fiat money, ODL is faster, more transparent, and **less costly** [emphasis added]."[13]

16. However, Professor Osler provides no justification nor uses any methodology to explain why she believes that ODL is "less costly" than traditional cross-border payments using fiat currency. The reality, as shown in Section 2.6.1, is that even Defendants' expert Professor Ferrell's own calculations show that ODL is not cost effective for financial institutions such as MoneyGram.

17. Professor Osler also argues, "ODL can be (and in my opinion is) a viable option for making cross-border payments even if it is not currently profitable."[14] To justify her opinion, she provides examples of technology firms such as Airbnb and Pinterest that took time to reach profitability and which currently have high valuations. However, merely citing examples of previously unprofitable companies which now have high valuations is insufficient for determining whether a company has a viable business model. One could just as easily point to unprofitable companies such as Webvan and MoviePass which spent a lot of money to grow their businesses but which resulted in significant losses to investors because they did not have sound business models.

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[11] Expert Report of Carol Osler, October 4, 2021 at 9.
[12] id. at 18.
[13] ibid.
[14] id. at 28.

18. Professor Osler critiques the SEC: "I understand that the SEC has argued that ODL is unprofitable or earns Ripple only *de minimis* revenue. Assuming that is true, ***it provides no information on the firm's ability to compete as a payments service provider using ODL*** [emphasis added]."[15] In a similar manner, Professor Osler does not supply any such information suggesting Ripple was able to provide an attractive value proposition for ODL in order to "compete as a payments service provider." This Rebuttal Section conducts analysis regarding the economic value proposition for ODL customers and finds no economic reasons for them to adopt ODL apart from receiving significant subsidies and incentive payments from Ripple.

2.3.3. Summary and Shortcomings of the Methodology and Findings Related to ODL in the Report of Professor Adriaens

19. The Adriaens Report i) describes various ways that technology startups seek to develop their business models and grow their user base and ii) argues that Ripple has followed a similar path in its attempt to grow its business. For example, he asserts that "Ripple's Business Model Development Is Consistent With That of a Startup in a High Technology Industry."[16]

20. Regarding ways to scale a business, the Adriaens Report describes how tech companies "will deploy aggressive product marketing and pricing strategies for optimal and rapid scaling, and adoption, of their product."[17] Such strategies include price discounts, and Professor Adriaens writes about such discounts, "Well-known tech companies that have deployed one or more of these discounting strategies before they became established, and their ***value proposition*** became accepted by the market, include Netflix, Lending Club, LinkedIn and others [emphasis added]."[18] Earlier in his Report, Professor Adriaens recognizes the importance

[15] ibid.
[16] Expert Report of Peter Adriaens, October 4, 2021 at 37.
[17] id. at 43.
[18] id. at 44.

for a company to have a strong value proposition and defines what a value proposition means: "The number one reason for success is delivering a superior value proposition to the customer – in other words, a product or service that delivers a superior benefit over the incumbent solution."[19] What the Adriaens Report thus implies is that in order for the deployment of price discounting strategies to be effective in scaling a business, the business must first have a strong value proposition that is attractive to customers. In the case of Ripple's ODL product, the pricing strategy went far beyond discounting – Ripple generated zero revenue from ODL and paid significant incentives and subsidies to convince companies to use the product.

21. In the case of Ripple, its core product ODL has a negative value proposition, since ODL does not offer "superior benefit over the incumbent [fiat] solution" but rather is much more expensive, as shown in Section 2.6.4. Therefore, any efforts invested in scaling ODL (such as through 100% discounts, incentive payments, and subsidies) may achieve short-term growth, but cannot be sustained because ODL does not provide a positive value proposition to customers such as MoneyGram, absent subsidies. This result is evident in Figure 2 in Section 2.5.2, which shows how ODL volume increased temporarily during the period where Ripple provided incentive payments to MoneyGram, but nonetheless eventually MoneyGram greatly reduced its usage of ODL, and as a result ODL volume decreased significantly.[20]

2.4. Overview of Methodology Used in this Rebuttal Section

22. This Rebuttal Section first starts with a review of ODL payment flows, as well as a high-level summary of ODL transaction volume. Next, the value proposition for a financial institution such as MoneyGram to use ODL is evaluated versus the use of traditional fiat

[19] id. at 40.
[20] On June 16, 2020, Ripple and MoneyGram signed a letter of amendment which reduced the previously agreed to "maximum Market Development Fee" by $10,000,000. (MONEYGRAM_SEC_0005825-0005826).

channels for cross-border payments. Specifically, this Rebuttal Section examines whether there is any economic rationale for using ODL without subsidies. The Rebuttal Section then proceeds to consider other subsidies, incentives, and rebates provided by Ripple to increase the adoption of its ODL product.

2.5. Overview of ODL

2.5.1. Overview of ODL Payment Flows

23. For the majority of transactions during the Issuance Period, an ODL transaction involved three steps.[21] First, the originating enterprise customer (e.g. a financial institution such as MoneyGram, which is a money transmitter), which had a supply of fiat currency bundled together from either its treasury or many individual retail transfer requests, traded that source fiat currency (e.g. U.S. Dollars) for XRP on a digital asset trading platform in the originating country. Second, using the XRP Ledger, the XRP was sent to that financial institution's account at another digital asset trading platform in the destination country. Third, this XRP was traded for a different fiat currency (e.g. Mexican Pesos) so that the financial institution could receive the local currency to its bank account in order to fund its retail withdrawal needs.

24. The money transmitter is exposed to at least three types of costs in executing an ODL transaction:

1) Each trade between a fiat currency and XRP incurred an exchange trading fee. This is the commission charged by a digital asset trading platform to facilitate the trade. ODL transactions involved two trades on digital asset trading platforms. Therefore, two exchange trading fees were charged.

[21] In May 2020, Ripple began a program to sell XRP directly to ODL customers, which eliminated the need to trade XRP for fiat on the sending digital asset platform. VIAMERICAS SEC00013519.

2) The ODL transaction, starting with one fiat currency and ending with another fiat currency, created an implied exchange rate[22] that, at times, might be significantly worse than the market exchange rate for those fiat currencies. This difference comprised a foreign exchange spread ("FX spread") to be paid by the money transmitter. The FX spread represents the percentage difference between the current market exchange rate of a traditional foreign exchange transaction (as denoted by the Reuters Benchmark) and the current market exchange rate implied by using prices on ODL trading platforms and XRP trades to convert between the fiat currencies.

3) Executing these XRP trades could induce an additional cost due to slippage. Slippage is the amount by which orders are executed at prices inferior to the quoted price at the time of order receipt. In the case of ODL, slippage occurred as a result of placing market orders on the originating and destination trading platforms and price fluctuations between the time of the first trade and the second trade. In other words, the final price paid above and beyond the Reuters Benchmark might be even worse than the calculated FX spread due to the actual prices received when the trades are executed.

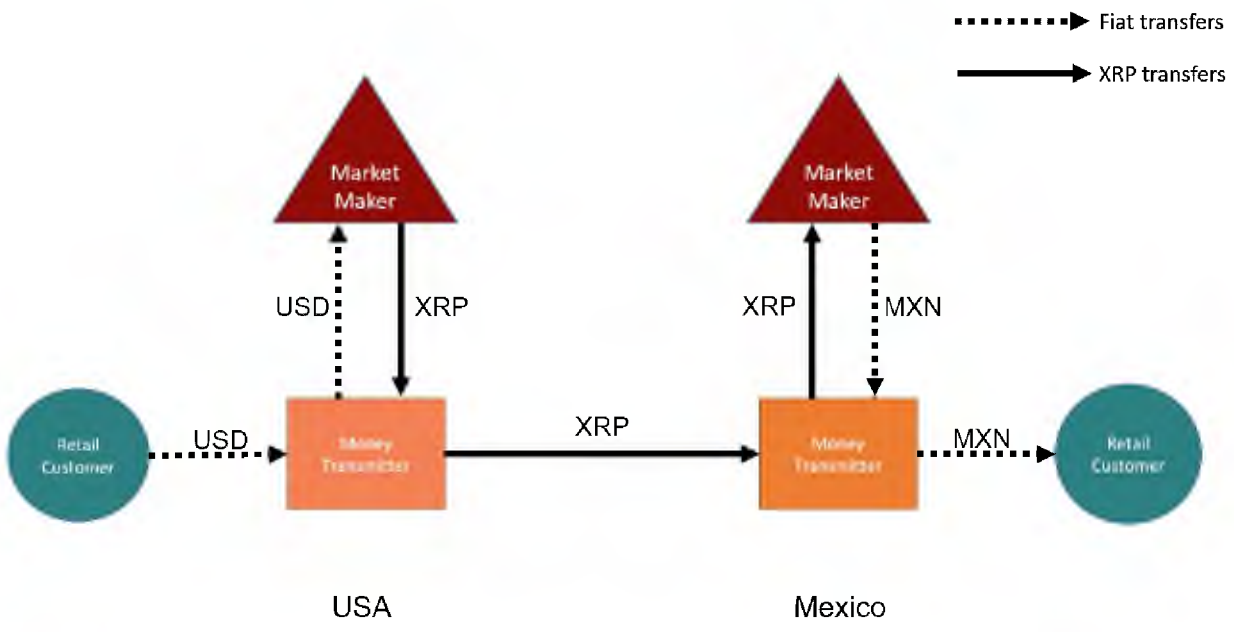
25. Multiple types of market participants were involved in an ODL transaction from start to finish during the Issuance Period: i) the money transmitter – a financial institution using ODL to complete a cross-border transfer payment, ii) trading counterparties which were often a market maker – an entity that provides liquidity by creating a bid-ask spread and constantly offering to both buy and sell XRP on a trading platform, and iii) the trading platforms – the venues where the trades are posted, processed, and matched. Ripple subsidized companies from

[22] "Implied exchange rate" refers to the effective price or ratio to convert between two fiat currencies such as U.S. Dollars and Mexican Pesos by trading from Dollars to XRP and then from XRP to Pesos at current market prices.

each of these three categories in order to encourage market participants to offer artificially low fees or to compensate market participants for financial losses due to the natural inefficiencies embedded into the mechanics of an ODL transaction such as paying exchange fees, a high FX spread, and slippage.

26. A visual description of an ODL transaction appears below in Figure 1. This example depicts a transaction in which a money transmitter in the U.S. sends U.S. Dollars to Mexico and converts the money into Mexican Pesos. The ODL customer in this scenario is a money transmitter such as MoneyGram. As seen in this image, two separate trades must be executed between the money transmitter (MoneyGram) and typically market makers on the originating and destination digital asset platforms.[23]

Figure 1. Example of ODL Transaction for Transfer Payment Between U.S. and Mexico.



[23] Market makers are used in the illustrative figure because they typically, although not necessarily always, were the counterparties to these trades.

27. One alternative to ODL is to use the traditional financial system. This involves using an international wire transfer, including a single trade on the foreign exchange interbank market. This foreign currency exchange is very cheap due to being some of the deepest and most liquid markets for any asset class.[24]

28. Not shown on Figure 1 are the eventual rebalancing transactions that the market maker must complete to replenish its supply of XRP on the U.S. platform and its supply of Pesos on the Mexican platform. To accomplish this the market maker at times needed to execute a traditional international wire transfer to convert U.S. Dollars into Mexican Pesos and send them across the border to its account in Mexico.[25] Ironically, this traditional international wire transfer is the very type of transaction that the entire ODL system is purportedly designed to avoid. These rebalancing transactions carried out by market makers using traditional wire transfers played the same role as wire transfers do for MoneyGram's traditional payments business – sending money slowly, cheaply, and infrequently in order to support much more expensive but instantaneous transactions as they are needed by counterparties.

2.5.2. ODL Volume Over Time

29. My Original Report charted the total monthly ODL transaction volumes during the Issuance Period,[26] and the chart is reproduced here in Figure 2. The figure charts total ODL transaction volumes as well as MoneyGram ODL transaction volumes. Figure 2 shows that

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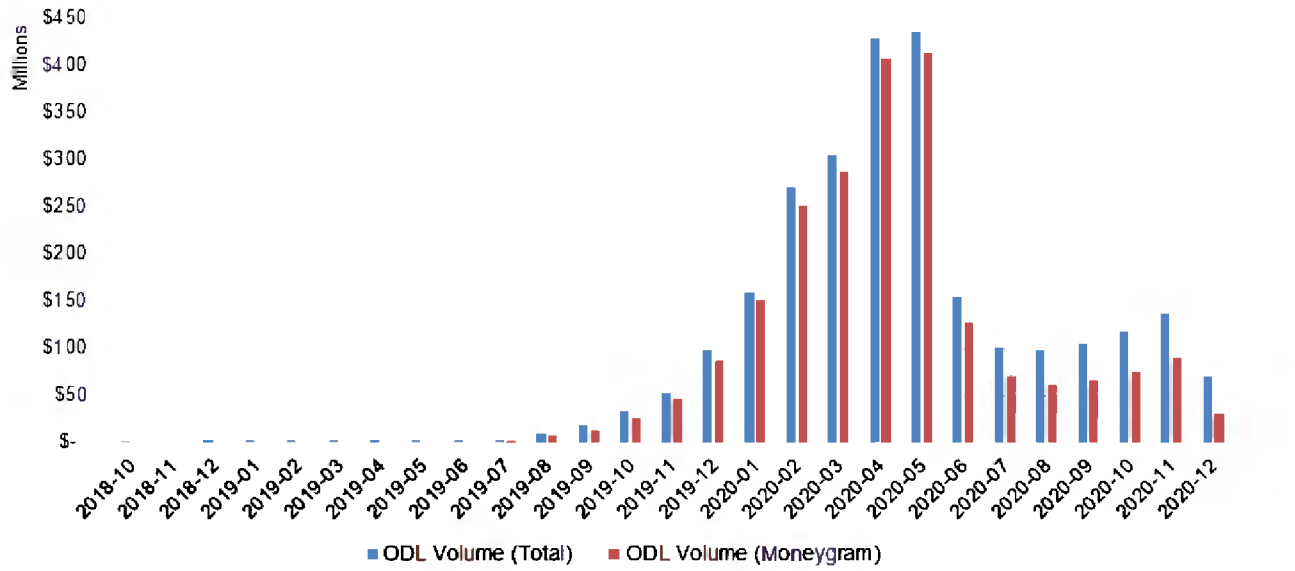
[24] Journal of Banking and Finance. Order flow, Bid-Ask Spread and Trading Density in Foreign Exchange Markets (2012) at 600.

[25] Email from [redacted] February 20, 2019 (SEC-[redacted]-E-0048808), email from Dinuka Samarasinghe, Ripple XRP Markets Team, July 2, 2019 (SEC-[redacted]-E-0048590), and Ripple, "Bi-Directional Flow" Presentation, October 2019, (RPLI_SEC 0929853) at Slide 5, "Background, Why Does Ripple Need to Pay MMs [market makers] to Support ODL?"

[26] ODL was launched in October 2018. Ripple. The Ripple Drop: On the Ground at Swell 2019 (2020). https://ripple.com/insights/the-ripple-drop-on-the-ground-at-swell-2019/.

MoneyGram was responsible for nearly all ODL activity during the Issuance Period. Starting in June 2020, MoneyGram's ODL volume fell significantly together with overall ODL volumes.

Figure 2. Monthly ODL Volumes of All Transactions and MoneyGram Transactions[27]



2.6. Main Findings

2.6.1. Professor Ferrell's Own Calculations Show that ODL, without Subsidies, Is Uneconomical for Financial Institutions such as MoneyGram

30. Section IV.B. of Professor Ferrell's Report identifies two categories of fees paid to complete an ODL transaction: i) exchange fees and ii) the FX spread. The exchange fees refer to fees charged by digital asset trading platforms and paid by the ODL customer and are reflected as a percentage of the total amount of the trade. The FX spread refers to the difference between the Reuters Benchmark exchange rate and the implied exchange rate using the current ODL market prices. The FX spread will tend to be worse when (i) XRP markets are less liquid,[28] (ii)

[27] ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162.
[28] "Liquidity" in the context of this report refers to the ability of an asset to be bought or sold without creating a large impact on the price of the asset. A liquid market is one that has many standing offers to buy or sell the asset traded in that market and where large market orders are easily and instantly absorbed by market makers.

the bid-ask spread is wider, or (iii) there is a persistent imbalance of supply and demand of XRP across different markets due to one-way payments dominating the trading.[29]

31. However, the cumulative total costs incurred along each leg of an ODL transaction included three categories of fees: i) exchange fees, ii) the FX spread, and iii) an additional potential source of loss not identified by Professor Ferrell – slippage. Together these costs determine whether ODL is economically viable as a payment solution while unsubsidized as compared to using traditional wire transfers and foreign exchange trades.

32. The Ferrell Report calculates the amount of just two of the three fee categories for both an ODL transaction and a traditional cross-border fiat transaction for several different transaction sizes under different market conditions. Specifically, Professor Ferrell's spread calculations relate to transactions between U.S. Dollars and Mexican Pesos ("USD-MXN") across the U.S. to Mexico payment corridor. It is noteworthy that this payment corridor, which the Ferrell Report uses exclusively for these comparative calculations, is the corridor that Ripple had developed the most – with significantly lower costs than many of the other payment corridors that Ripple has sought to develop for ODL.[30] Table 1 reproduces Exhibit 21 from the Ferrell Report which depicts the spreads under "lower market liquidity" conditions, as defined by Ferrell, which in turn cause the ODL FX spread to be higher. According to Ferrell's own analysis, the excess cost of carrying out a large international transfer using ODL is extraordinary under market conditions with low XRP liquidity. A $1 million transfer under these conditions

[29] A capital flow imbalance across two countries could create a constant demand to buy XRP in one country and a constant demand to sell it in another country, causing XRP to become more valuable in one location compared to the other. The result would be significant additional costs for a money transmitter to use ODL. This imbalance and cross-border price difference has happened historically with certain digital assets when strict capital controls were in place, meaning there were heavy restrictions on the attempted movement of capital out of a country.

[30] Ripple, "Natural Liquidity" Presentation (January 2020), (RPLI_SEC 0807905 and 0807916); email from Matt Curcio, January 31, 2020 (RPLI_SEC 07719909); and ODL transaction volume records (RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162). From ODL transaction volume records, the USD-MXN corridor had the highest volume in 2020 among all corridors.

costs an additional $6,852.58 with ODL compared to a traditional wire transfer ($6,967.58 for ODL and only $115 for the wire transfer), as seen in the bottom right corner of the table.

Table 1. Ferrell Report's USD-MXN Cost Calculations from Lower Market Liquidity Condition on ODL.[31]

	Average Percentage Fees	Notional Amount of Remittance in USD				
		[1]**	[2]	[3]	[4]	[5]
Notional Amount		$2,184.18	$10,000.00	$22,477.95	$50,000.00	$1,000,000.00
Transfer using ODL						
Bitstamp Fee [1]	0.10%	$2.18	$10.00	$22.48	$50.00	$1,000.00
Bitso Fee [1]	0.05%	$1.09	$5.00	$11.24	$25.00	$500.00
Average ODL FX Spread [2]	0.55%	$11.94	$54.68	$122.90	$273.38	$5,467.58
ODL Notional (with fees)		$2,199.39	$10,069.68	$22,634.57	$50,348.38	$1,006,967.58
Total Cost Incurred (ODL)		$15.22	$69.68	$156.62	$348.38	$6,967.58
Transfer using Traditional						
Notional Amount		$2,184.18	$10,000.00	$22,477.95	$50,000.00	$1,000,000.00
Bank Transfer Fee [3]		$15.00	$15.00	$15.00	$15.00	$15.00
Average FX Spread [2]	0.01%	$0.22	$1.00	$2.25	$5.00	$100.00
Traditional Notional (with fees)		$2,199.39	$10,016.00	$22,495.20	$50,020.00	$1,000,115.00
Total Cost Incurred (Traditional)		$15.22	$16.00	$17.25	$20.00	$115.00
Cost Difference (ODL - Traditional)		**$0.00**	**$53.68**	**$139.37**	**$328.38**	**$6,852.58**

33. Since money transmitters are financially incentivized to minimize cost by batching many retail customer transfers together into a small number of very large international transfers,[32] the largest transfer category for traditional fiat transfers is the most relevant in Professor Ferrell's ODL cost tables. MoneyGram's CFO Lawrence Angelilli confirmed that MoneyGram indeed typically covers their entire daily transfer needs with one to three large transactions using the traditional financial system, implying typical transfer sizes of up to $10 million at a time.[33] While MoneyGram's 2020 daily ODL average volume for the USA to

[31] Expert Report of Allen Ferrell, October 4, 2021 at 104.
[32] Financial institutions are incentivized to batch transactions together because the fixed-costs per transaction becomes much more expensive as a percentage of total transaction size as transactions become smaller.
[33] Deposition of MoneyGram CFO Lawrence Angelilli, August 3, 2021 at 41: "We'll stay on Mexico -- assuming we were going to do $10 million in trades a day, we might do two trades, maybe three, sometimes one. With Ripple we were doing -- we had a bot that actually was directly integrated with their system, and was going out and doing $30,000 trades in rapid succession, to get us to the amount of trading that we needed."

Mexico payment corridor was $3.2 million,[34] its actual average daily volume for payments from USA to Mexico are closer to $10 million.[35] Angelilli also confirmed that MoneyGram does not make a cross-border payment for each retail money transfer, but rather batches transactions over a 24-hour period.[36] Therefore, while Professor Ferrell's analysis of MoneyGram's ODL activity finds that the average size of its ODL transfers was "approximately $12,000" from July 2019 to December 2020, it is not appropriate to use this low transaction size for traditional transfers to calculate breakeven costs for ODL, since MoneyGram would normally have batched transfers in much larger sizes absent ODL. According to MoneyGram's CFO, virtually all other money transmitters batch their payments, and thus even smaller money transmitters would not find ODL to be economically viable relative to the traditional financial system.[37]

34. An analysis of MoneyGram's actual ODL transfers further highlights how it is not appropriate to apply MoneyGram's low average transfer amount ("approximately $12,000") while using ODL as a basis for determining the appropriate transaction size to use for a cost comparison between ODL and the traditional payment system. While using ODL, MoneyGram continued to aggregate its daily needs for money transfers, but executed that daily transfer by using a trading bot[38] to break up the transaction into many small and equally-sized portions throughout the day that could likely be absorbed by market makers more easily and reduce

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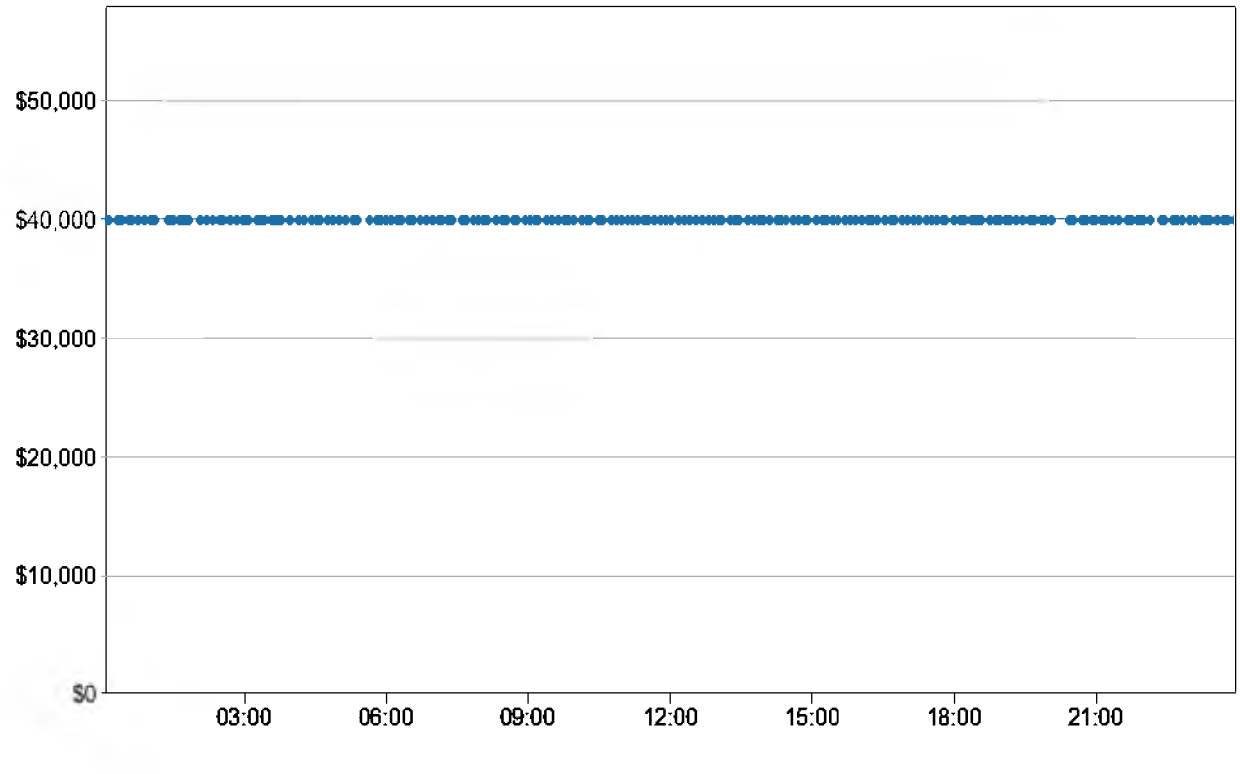
[34] MoneyGram. ODL Transaction Details (2020) (MONEYGRAM_SEC_0017277).
[35] Deposition of MoneyGram CFO Lawrence Angelilli, August 3, 2021 at 24.
[36] Deposition of MoneyGram CFO Lawrence Angelilli, August 3, 2021 at 26-27: "Q.·[Defendant counsel Mr. Ceresney] You don't transfer funds for each one of those money transfer -- money remitters -- money transfers; is that fair? A. [MoneyGram CFO, Mr. Angelilli] Correct. Q. How do you go about conducting your operations to transfer money between jurisdictions? A. So the business is open 24/7, and we have a system that records all of the transactions real-time from our agents all over the world. We have cutoffs during the day where we are able to aggregate those transactions and either buy or sell the currencies that we need to settle with the agents in those -- in those countries. So specifically for Mexico, we know when we come in in the morning what transactions have been completed over the last 24 hours...Q. So you aggregate all of the money transfers in a particular day, and you make sure that you have the money in that jurisdiction to cover all of those transfers; is that fair? A. Correct.
[37] Deposition of MoneyGram CFO Lawrence Angelilli, August 3, 2021 at 73-74.
[38] id. at 41.

trading costs due to slippage. MoneyGram's daily ODL activity[39] for May 5, 2020 is visible in Figure 3 below. Each dot represents a distinct trade, and the specific U.S. Dollar trade size, $39,898.99 was repeated 191 times throughout the day for a total of $7,620.707.09. This pattern illustrates that these trades were not executed in response to individual retail payments but rather as part of a daily treasury payment. All of this activity suggests that large, daily treasury payments are the norm for MoneyGram, and therefore a $1 million payment for traditional financial transfers is an appropriate payment size to calculate and compare costs. The $12,000 average payment size used by Professor Ferrell is not representative of how MoneyGram typically operates with traditional payments.[40]

Figure 3. MoneyGram USD-MXN ODL Transactions on May 5, 2020.[41]



[39] MoneyGram. ODL Transaction Details (2020) (MONEYGRAM_SEC_0017277).
[40] When comparing costs between traditional transfers and ODL transfers, the ODL transaction size can be small or large without impacting the results. ODL transaction size does not affect the comparison at all since ODL has no fixed costs. Only the size of the traditional payment makes a difference to cost calculations on a per-dollar basis.
[41] MoneyGram. ODL Transaction Details (2020) (MONEYGRAM_SEC_0017277).

35. The Ferrell Report also outlines the fees paid in a "higher market liquidity" environment. These calculations are in the Ferrell Report's Exhibit 22 which is reproduced in Table 2 below. The main difference between the results shown in this table and the previous table is that the hypothetical FX spread in Ferrell's "higher market liquidity" scenario has decreased dramatically from 0.55% to 0.11% (or 11 basis points[42]). The exchange fees also decreased from 0.15% to 0.10%. Nevertheless, as seen in Table 2, despite the decrease in the FX spread and exchange fees for this second and more favorable scenario, the overall costs of ODL transactions are still more expensive than traditional finance transfers for all but the smallest transaction sizes. A $1 million transfer, which is much smaller than MoneyGram's average daily transfers from U.S. to Mexico, would cost $1,986.38 more using ODL compared to using traditional methods.[43] **As such, the Ferrell Report's own optimistic scenario for ODL costs demonstrates that it was not economically viable for financial institutions like MoneyGram to use ODL given their ability to batch transactions and access incredibly cheap transfers through the traditional financial system.** Moreover, as will be discussed in the following Section, the Ferrell Report uses incorrect calculations and assumptions that underestimate the actual ODL costs.

[42] A single "basis point" equals 0.01%, while 100 basis points equal 1%.

[43] ODL has no fixed-fee component and the market impact of a trade is not as severe with smaller trades, so for ODL transactions, MoneyGram began to use many smaller and equally-sized transfers to cover its daily treasury transfer needs. The size and frequency of those transactions make it clear that they do not correspond to individual retail orders. The cheapest option for MoneyGram would be large and less frequent batch transactions through the traditional fiat financial system.

Table 2. Ferrell Report's USD-MXN Spread Calculations from Higher Market Liquidity Condition on ODL.[44]

	Average Percentage Fees	Notional Amount of Remittance in USD				
		[1]**	[2]	[3]	[4]	[5]
Notional Amount		$7,494.82	$10,000.00	$22,477.95	$50,000.00	$1,000,000.00
Transfer using ODL						
Originating Exchange Fee [1]	0.05%	$3.76	$5.01	$11.27	$25.07	$501.38
Receiving Exchange Fee [1]	0.05%	$3.75	$5.00	$11.24	$25.00	$500.00
Average ODL FX Spread [1]	0.11%	$8.24	$11.00	$24.73	$55.00	$1,100.00
ODL Notional (with fees)		$7,510.57	$10,021.01	$22,525.18	$50,105.07	$1,002,101.38
Total Cost Incurred (ODL)		$15.75	$21.01	$47.23	$105.07	$2,101.38
Transfer using Traditional						
Notional Amount		$7,494.82	$10,000.00	$22,477.95	$50,000.00	$1,000,000.00
Bank Transfer Fee [2]		$15.00	$15.00	$15.00	$15.00	$15.00
Average FX Spread [3]	0.01%	$0.75	$1.00	$2.25	$5.00	$100.00
Traditional Notional (with fees)		$7,510.57	$10,016.00	$22,495.20	$50,020.00	$1,000,115.00
Total Cost Incurred (Traditional)		$15.75	$16.00	$17.25	$20.00	$115.00
Cost Difference (ODL - Traditional)		**$0.00**	**$5.01**	**$29.99**	**$85.07**	**$1,986.38**

2.6.2. The Ferrell Report Incorrectly Calculates and Underreports ODL FX Spread Costs

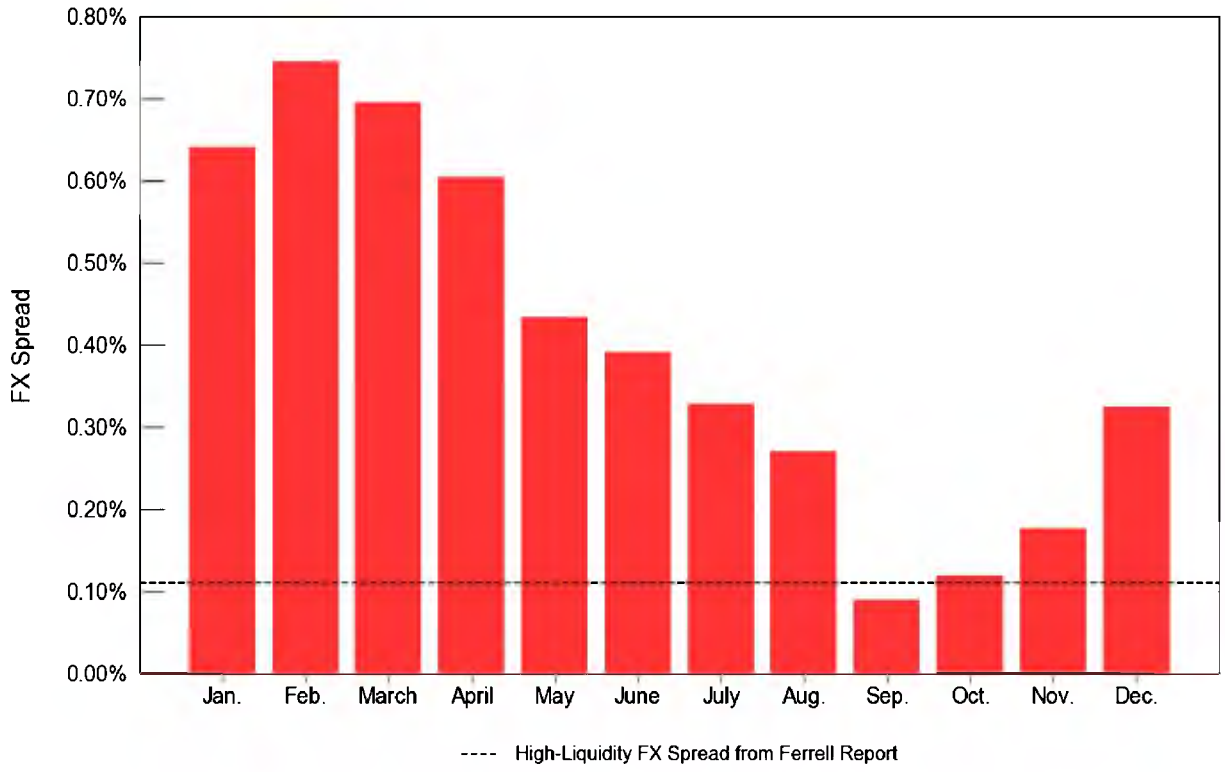
36. The average ODL FX spread of 11 basis points used by Professor Ferrell for the "higher market liquidity" scenario is incorrect. The explanation provided by Professor Ferrell for the 11 basis points is that the "ODL FX Spread [used is] the average of the USD-MXN fees over the period October through December 2020" and such fees are obtained from "Detailed ODL transaction data received from MoneyGram."[45] After my own analysis of the same data set used by Professor Ferrell, I conclude that the average ODL FX spread paid by MoneyGram for October, November, and December 2020 were 11.9, 17.6, and 32.4 basis points, respectively. The volume-weighted average of the ODL FX spreads paid over that entire three-month time period was 16 basis points, as opposed to the 11 basis points reported by Professor Ferrell

[44] Expert Report of Allen Ferrell, October 4, 2021 at 105.
[45] Expert Report of Allen Ferrell, October 4, 2021 at 104.

derived from the same data set. In fact, the result given by Professor Ferrell is lower than any of the three months individually in that time period.

37. Professor Ferrell's methodology of using the average ODL FX spreads from October to December 2020 for the 'higher market liquidity' scenario is also misleading because it used a spread value that was lower than the average monthly value for all but one of the months during the last year of the Issuance Period even though spreads were clearly rising again in late 2020. Figure 4 shows a more complete picture of the FX spreads paid by MoneyGram in the U.S. to Mexico payment corridor for each month in 2020. The dotted line on this chart shows the ODL FX spread value that was given by Professor Ferrell. As discussed in the prior paragraph, Professor Ferrell represented that this value was the average for the last three months of 2020, which is incorrect.

Figure 4. Average Monthly FX Spread Using ODL in the USD-MXN Corridor in 2020.



38. This reversing upward trend in the ODL FX spread in the last quarter of 2020 is consistent across all the payment corridors analyzed by Professor Ferrell. However, to support his assertion that "The Cost of Using ODL Decreased Over Time as the XRP Market Liquidity Improved,"[46] Professor Ferrell fails to mention this increase in ODL FX spreads during the last three months of the Issuance Period. Exhibit 20 shown in Professor Ferrell's report provides a table with the average monthly change in "FX Disadvantage," where "FX Disadvantage" is the higher cost of running a cross-border payment through ODL versus through traditional fiat channels. Table 3 below reproduces the results from Professor Ferrell's Exhibit 20 and adds an additional row, which is the average monthly change in "FX Disadvantage" for the last quarter of 2020, based on Professor Ferrell's own numbers as reported in Exhibit 19. As can be seen in Table 3, while the "FX Disadvantage" for ODL decreased on average from August 2019 to December 2020, it increased from October 2020 to December 2020. This reversing trend also was previously displayed in Figure 4 above.

[46] Expert Report of Allen Ferrell, October 4, 2021 at 75.

Table 3. Comparison Between Ferrell Report Average ODL "FX Disadvantage" Versus Average for Last Quarter of 2020.[47]

Average Monthly Cost Reduction (BPS)	AUD-PHP	AUD-USD	EUR-USD	USD-MXN	USD-PHP
Ferrell Report Exhibit 20 (August 2019 - December 2020)	-3.67	-2.90	-4.04	-3.59	-2.23
Most Recent Trend (October 2020 - December 2020)	n/a[48]	+10.23	+2.37	+10.36	+7.4

39. This reversing trend where the cost of using ODL increased in the most recent part of the Issuance Period is relevant and notably absent from Professor Ferrell's discussion of ODL costs. The trajectory of ODL costs for money transmitters at the end of the Issuance Period gave no indication that ODL would have an economical value proposition for financial institutions to continue to adopt ODL, absent subsidies provided by Ripple.

2.6.3. Trading Fees on Digital Asset Platforms

40. The trading fees for digital asset platforms ("exchange fees") used in the Ferrell Report's "higher market liquidity" scenario, as shown in Table 2, are higher than the exchange fees that were specified on the websites of the digital asset platforms used in these cross-border transactions during the Issuance Period. USD-MXN transactions on ODL use the Bitstamp

[47] Values reproduced from and calculated from Exhibits 19 and 20 of Expert Report of Allen Ferrell, October 4, 2021. The average monthly cost reduction for October 2020 to December 2020 was calculated by applying a least squares fit to the FX disadvantages from Exhibit 19 for October 2020, November 2020, and December 2020, which is the methodology provided by Ferrell's Ex. 17, 19, 20 backup file. The listed currency pairs are as follows: AUD-PHP (Australian Dollars to Philippine Pesos), AUD-USD (Australian Dollars to U.S. Dollars), EUR-USD (Euros to U.S. Dollars), USD-MXN (U.S. Dollars to Mexican Pesos), USD-PHP (U.S. Dollars to Philippine Pesos).
[48] Exhibit 19 of Expert Report of Allen Ferrell, October 4, 2021 does not have any entries for the AUD-PHP corridor for Q4 2020.

digital asset platform for payments originating in the U.S. and the Bitso digital asset platform for payments terminating in Mexico. Figure 5 and Figure 6 show screenshots of a 2020 version of the websites for Bitstamp and Bitso respectively. These websites specified the exchange fees for different volume tiers. These two platforms, like most digital asset platforms, charge different fee rates to different customers depending on how much volume they have traded over the previous 30 days and whether the customer is a "maker" or a "taker" on a given trade. For each trade, the "maker" posts an order to buy or sell an asset, while the "taker" decides to accept the posted order. The names refer to the fact that one side makes liquidity and the other side takes liquidity. In the context of XRP trades for ODL transactions, a market maker is going to be the "maker," just as their name suggests. MoneyGram will be the "taker" in these transactions because MoneyGram would typically desire to transact immediately and would be willing to accept the current market price to do so. MoneyGram averaged $73 million[49] in monthly transactions in 2020 for the U.S. to Mexico payment corridor. This transaction volume, while paying the "taker" rate, corresponds to exchange fees of 7 basis points for Bitstamp and 26 basis points for Bitso. The total exchange fees should therefore be 33 basis points instead of the 10 basis points used in the Ferrell Report's "higher market liquidity" scenario shown in Table 2.

[49] MoneyGram ODL Transactions. 00_2020.01.02 - 12.09 - MONEYGRAM_SEC_0017277.

Figure 5. Bitstamp Transaction Fees.[50]

TRADING FEES (ALL PAIRS)

Fee %	30 days USD volume
0.50%	**< $10,000**
0.25%	**< $20,000**
0.24%	**< $100,000**
0.22%	**< $200,000**
0.20%	< $400,000
0.15%	< $600,000
0.14%	< $1,000,000
0.13%	< $2,000,000
0.12%	< $4,000,000
0.11%	< $20,000,000
0.10%	< $50,000,000
0.07%	< $100,000,000
0.05%	< $500,000,000
0.03%	< $2,000,000,000
0.01%	< $6,000,000,000
0.005%	< $10,000,000,000
0.0%	> $10,000,000,000

[50] Bitstamp. Bitstamp Fee Schedule (Archived on May 31, 2020) https://web.archive.org/web/20200531102031/https://www.bitstamp.net/fee-schedule/.

Figure 6. Bitso Transaction Fees.[51]

Markets vs Mexican Peso (MXN)

MAKER %	TAKER %	YOUR VOLUME MXN
0.500%	0.650%	< 1,500,000
0.490%	0.637%	> 1,500,000
0.480%	0.624%	> 2,000,000
0.440%	0.572%	> 5,000,000
0.420%	0.545%	> 7,000,000
0.400%	0.520%	> 10,000,000
0.370%	0.481%	> 15,000,000
0.300%	0.389%	> 35,000,000
0.200%	0.260%	> 50,000,000
0.100%	0.130%	> 150,000,000
0.000%*	0.130%	> 250,000,000

* The fees for the top tier will apply to all MXN books except for XRP/MXN, where the fee would be applied based on the 150 million volume fees.

41. One reason for the discrepancy related to trading fees is that Ripple has provided subsidies to trading platforms in order to reduce the trading fees charged for XRP trades involved with ODL, which had the effect of artificially improving the costs for ODL users. For example, with respect to Bitso, Ripple entered into an agreement whereby Bitso agreed to keep

[51] Bitso. Bitso Fees (Archived on November 12, 2020). https://web.archive.org/web/20201112041112/https://bitso.com/fees.

exchange fees at [redacted]% or below and in return Ripple would pay Bitso an upfront fee of [redacted] plus monthly payments up to [redacted] based on the volume of ODL transactions on Bitso.[52] The artificially low [redacted]% exchange fee on Bitso for ODL customers was brought about through subsidies, and there is no guarantee that the fees will stay at that low rate since Ripple's agreement with Bitso has a term, albeit renewable, of one year.[53] Unsubsidized exchange fees that apply to typical market participants are the most accurate reflection of the underlying cost of making a transfer with ODL. These fee rates would be the higher total aggregate rate of 33 basis points, comprised of 7 basis points for Bitstamp and 26 basis points for Bitso.

2.6.4. Corrected Cost Calculations for ODL Further Demonstrate that ODL is Uneconomical for Financial Institutions like MoneyGram

42. Table 4 below replicates Professor Ferrell's "Higher Market Liquidity" scenario but uses the corrected results for ODL fees as described in Sections 2.6.2 and 2.6.3. A comparison of the costs for an ODL transfer versus the costs for a transfer using the traditional financial system is also provided.

[52] Ripple. Exchange Support Agreement with Bitso (2018) (RPLI_SEC 0296294-0296303).
[53] ibid.

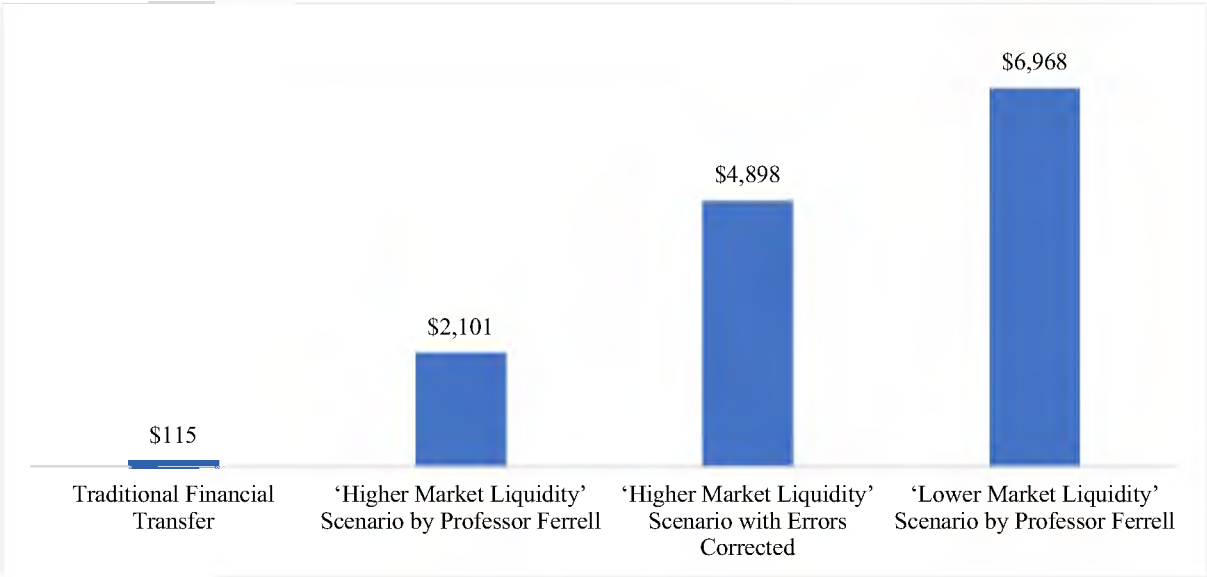
Table 4. Corrected USD-MXN Cost Calculations from Higher Market Liquidity Condition.

	Average Percentage Fees	Notional Amount of Remittance in USD				
		[1]	[2]	[3]	[4]	[5]
Notional Amount		$7,494.82	$10,000.00	$22,477.95	$50,000.00	$1,000,000.00
Transfer using ODL						
Bitstamp Fee	0.07%	$5.25	$7.00	$15.73	$35.00	$700.00
Bitso Fee	0.26%	$19.49	$26.00	$58.44	$130.00	$2,600.00
Average ODL FX Spread	0.16%	$11.98	$15.98	$35.92	$79.90	$1,598.00
ODL Notional (with fees)		$7,531.53	$10,048.98	$22,588.05	$50,244.90	$1,004,898.00
Total Cost Incurred (ODL)		$36.71	$48.98	$110.10	$244.90	$4,898.00
Transfer using Traditional						
Notional Amount		$7,494.82	$10,000.00	$22,477.95	$50,000.00	$1,000,000.00
Bank Transfer Fee		$15	$15	$15	$15	$15
Average FX Spread	0.01%	$0.75	$1.00	$2.25	$5.00	$100.00
Traditional Notional (with fees)		$7,510.57	$10,016.00	$22,495.20	$50,020.00	$1,000,115.00
Total Cost Incurred (Traditional		$15.75	$16.00	$17.25	$20.00	$115.00
Cost Difference (ODL - Traditional)		$20.96	$32.98	$92.85	$224.90	$4,783.00

43. The figures presented in Professor Ferrell's "Higher Market Liquidity" scenario are incorrect. ODL transactions are even more expensive than the results produced by Professor Ferrell in the "higher market liquidity scenario." Between the error in the ODL FX spread figure and the higher actual unsubsidized exchange fees, I conclude even the 'higher market liquidity' ODL transactions are more expensive by at least 28 basis points over and above the values presented by Professor Ferrell.

44. To compare the difference in ODL transaction costs between my corrected "higher market liquidity" scenario and Professor Ferrell's scenarios, I compare the costs incurred under each of those scenarios for a daily batch transaction size of $1 million (Figure 7), which is conservatively low because it is only roughly one-third of the average daily ODL transactions MoneyGram completed in the U.S.-Mexico payment corridor in 2020. I also include the cost for completing the transaction using the traditional financial system.

Figure 7. Comparison of Costs Under Various Scenarios for a $1 Million Cross-Border Transfer.



45. The analysis in Figure 7 shows that under any of the above market conditions, ODL is uneconomic compared to simply executing a traditional cross-border transaction using fiat currency. Indeed, based on my analysis, and using the example transaction sizes proposed by the Ferrell Report, ODL costs between 133% to 4,159% more as compared to using traditional financial payments. The key reason for the higher costs are threefold. First, a transfer using the traditional financial system only utilizes a single trade charging a single fee. In contrast to traditional wire transfers, ODL transactions include two trades (first at the originating platform and then at the destination platform), with each trade involving a separate fee, totaling 0.33%. Second, for a traditional financial transfer the foreign exchange trade is executed in a liquid market with extremely low typical FX spreads of around 0.01%. ODL transactions involve much higher ODL FX spreads, whether 0.11% under Ferrell's incorrect "higher market liquidity" scenario or 0.16% under my report's corrected "higher market liquidity" scenario. Thus, the variable fees of cross border transactions are at least 0.21%-0.49%, which is over 20 times higher

than using a traditional fiat transfer. Third, once the trades are actually executed, slippage can make these costs go up even more.

2.6.5. To Promote Adoption of ODL, Ripple Paid Additional Subsidies and Incentives

46. The cost analysis in the Ferrell report only calculated a portion of the actual unsubsidized costs borne by ODL users, i.e., the exchange fees and FX spread fees. A third category of cost was not discussed – slippage. Slippage was directly refunded with additional subsidies paid by Ripple. The costs due to slippage that were ignored by Professor Ferrell were tracked by MoneyGram and Ripple. According to an agreement between Ripple and MoneyGram, a "slippage pool" was created to compensate MoneyGram any time that the quoted prices deviated from their realized trade prices.[54] The slippage pool subsidy was paid in XRP at least every three days.

47. In addition, the full extent of the unsubsidized costs of using ODL were sometimes hidden from view due to Ripple payments made to other market participants. The ODL FX spreads incurred by financial institutions such as MoneyGram were artificially low because Ripple also paid fixed and variable fees to market makers[55] to minimize the FX spreads for the XRP trading pairs at ODL corridors, e.g., the XRP-MXN trading pair at Bitso. Without these payments to market makers, the ODL FX spreads reported in Tables 2 and 4 would be much higher. A Ripple internal document calculates that the payments to market makers for artificially reducing ODL FX spreads cost an additional 0.73% of transaction volume in the case of MoneyGram's usage of ODL.[56] Ripple also lent XRP to market makers which enabled them to cheaply source XRP to perform their market making activities.[57]

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[54] Ripple. Ripple Work Order (MoneyGram, 2019). (MONEYGRAM_SEC_0000662).
[55] Email from [redacted]. Ripple Employee, January 1, 2019. (RPLI_SEC 0550287).
[56] Ripple. ODL Account Review (2020). (RPLI_SEC 0688736).
[57] 2019-09-10 GSR Master lease agreement (GSR00000039).

48. Ripple was aware of the high total payments it made to all of its partners in order to directly or indirectly subsidize ODL activity. In January 2020, members of its XRP Markets and Data teams developed an "Average Cost of Liquidity" metric to track the cost of Ripple subsidies needed to enable each ODL transaction, for the purpose of "Controlling costs as we scale ODL."[58] This metric included costs to: i) keep exchange fees low, ii) compensate ODL users for having to pay higher FX rates and slippage while using ODL, and iii) incentivize market makers to keep ODL FX spreads low. Table 5 reproduces analysis conducted by Ripple that analyzed its cost to service various ODL payment corridors. It should be noted that the "Average Cost of Liquidity" metrics excluded Ripple's significant costs incurred by paying ODL customers transaction-based volume incentives since Ripple's XRP Markets and Data teams considered those costs to be "more related to cost of sales."[59]

Table 5. Ripple Internal Table Summarizing Ripple's Cost to Service Various ODL Payment Corridors.[60]

49. Ripple's "liquidity costs" to enable ODL, shown in Table 5, are extremely high. For the USD/MXN corridor, the corridor with the highest ODL volume, the "Average Liquidity

[58] Email from [redacted], Ripple Employee, January 1, 2019. (RPLI_SEC 0550287).
[59] ibid.
[60] ibid.

Cost" per dollar was $[redacted]. In other words, despite generating no revenue from ODL transactions, Ripple incurred a cost of [redacted]% of each ODL transaction, or [redacted] basis points, in order to provide a partial incentive for ODL users in the USD/MXN corridor.[61] This extraordinary cost, which does not include volume incentive payments to ODL users, is over [redacted] times the approximately [redacted]% to [redacted]% in FX spread and wire transfer fees that would be incurred by a money transmitter using traditional fiat for a cross-border payment.

[61] The "Average Liquidity Cost" includes a subsidy not previously discussed in this report, nor in the Ferrell Report, which is that Ripple paid an FX rebate that made it such that ODL users would pay a maximum of 0.05% in total exchange fees and ODL FX spreads.

3. REBUTTAL TO PROFESSOR ADRIAENS' REPORT

3.1. Assignment

50. In Section IV.C. of his report (the "Adriaens Report"), Professor Adriaens identifies 91 businesses (the "91 Businesses") that raised over $6 billion in equity investment and, in Professor Adriaens' opinion, demonstrate "use cases" of XRP or the XRP Ledger.[62] In Professor Adriaens' opinion, these 91 Businesses and their total equity investment demonstrate i) "the breadth and depth of the commercial value of the XRP Ledger and XRP," and ii) the "plethora of new products/services and use cases leveraging the XRP Ledger or XRP."[63] According to Professor Adriaens, these 91 Businesses were not "developed or enabled directly by Ripple"[64] and "result from third-party developers."[65]

51. In this Section, I have been asked by the SEC to examine and comment on these opinions and Professor Adriaens' related opinion that "[t]he XRP Ledger and its native currency, XRP, have commercial utility that third parties have leveraged in the creation or advancement of their business models[66]."[67] and to determine whether they are sufficiently supported by his methodology and available data regarding the 91 Businesses.[68]

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[62] Professor Adriaens frequently refers to the businesses he describes, including the 91 Businesses, as "use cases." This description is inaccurate for the reasons set forth in this report.
[63] Expert Report of Peter Adriaens, October 3, 2021 at 63.
[64] Products and services developed or "enabled" by Ripple are treated by Professor Adriaens in Section IV.A and Section IV.B of his report, respectively, although some businesses identified as being "enabled" by Ripple are erroneously included in the list of the 91 Businesses.
[65] Expert Report of Peter Adriaens, October 3, 2021 at 59.
[66] Professor Adriaens further opines that the supposed "commercial utility" of XRP and the XRP Ledger "that third parties have leveraged in the creation or advancement of their business models" directly demonstrate the "decentralized nature of the XRP Ledger." (Expert Report of Peter Adriaens, October 3, 2021 at 9). I have not been asked to opine, and am not opining, on the question of whether the XRP Ledger is decentralized or whether the supposed "commercial utility" of XRP or the XRP Ledger demonstrates that the XRP Ledger is decentralized.
[67] Expert Report of Peter Adriaens, October 3, 2021 at 9.
[68] I have not been asked to review and do not express any opinion in this Section of this Rebuttal report on any other portion of Professor Adriaens' report.

3.2. Summary of Findings

52. To arrive at the opinions set forth above, Professor Adriaens employs a methodology that is significantly flawed. Specifically, he fails to assess the extent to which the equity investment raised by the 91 Businesses was actually related to their purported "use" of XRP or the XRP Ledger. Indeed, he fails to provide *any* evidence that the 91 Businesses received investment funding because of XRP or XRP Ledger technology. Thus, he fails to provide any basis for his conclusion that the equity investment received by the 91 Businesses reflects an endorsement of the value of XRP or the XRP Ledger.

53. Based on my analysis, for all but three of the 91 Businesses, XRP and the XRP Ledger are at most a small, ancillary part of their business model, and in certain cases XRP and the XRP Ledger play no discernable role in the company's business. These 88 businesses do not require the XRP Ledger or XRP for their core operations and there is no reason to believe they would not have received investment funding if the XRP Ledger or XRP did not exist. As such, in my opinion, the amount of funding received by the majority of the 91 Businesses does not in any way demonstrate the "breadth and depth" of the commercial value of XRP and the XRP Ledger.

54. In addition, several of the 91 Businesses that Professor Adriaens includes do not even meet the criteria Professor Adriaens provides in his own methodology. One of Professor Adriaens' criteria for the 91 Businesses is that the company needs to have been founded after the launch of XRP in order to exclude "companies that could not have been started as the result of

adopting the XRP Ledger or XRP."[69] However, his list of 91 Businesses includes eight companies that were founded before XRP or the XRP Ledger were created.[70]

55. Professor Adriaens also characterizes the 91 Businesses as having "leveraged" the "commercial utility" of XRP or the XRP Ledger.[71] Although Professor Adriaens does not define the term, I understand based on my expertise in digital asset technology that "leveraging" a technology refers to using that technology to add significant value to a business's products, services, or operations. However, included in the 91 Businesses are companies that clearly do not leverage XRP or the XRP Ledger. For example, Professor Adriaens classifies Worldcore as an "Online Payment Service Provider," but the URL he provides contains no reference to XRP or the XRP Ledger and appears instead to be an Initial Coin Offering (ICO) for an unrelated token.[72] Also, in at least two cases, Professor Adriaens mistakenly attributes the equity investment received by companies with the same or similar names to companies that supposedly used XRP or the XRP Ledger. These errors result in further misattribution of equity investment to the supposed value of XRP or the XRP Ledger.

56. The analysis in this Rebuttal identifies only three out of the 91 Businesses for which XRP or the XRP Ledger conceivably could have been core to those companies' business operations when they received equity investment. However, all three received additional funding, incentive payments, and/or subsidies from Ripple, suggesting that these three businesses were

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[69] Expert Report of Peter Adriaens, October 3, 2021 at 64. Specifically, Professor Adriaens writes, "Second, I determined, using the same databases, the founding date of the companies behind those use cases. This step identifies and eliminates companies that could not have been started as the result of adopting the XRP Ledger or XRP. However, some companies founded prior to this cutoff date may have implemented some use case for XRP or the XRP Ledger."

[70] Expert Report of Peter Adriaens, October 3, 2021 at Appendix D and Crunchbase. https://www.crunchbase.com. The eight companies founded before Ripple are BitPay (2011), Bitstamp (2011), Ecwid (2009), Plus500 (2008), Shopify (2004), Viamericas (1999), WeMakePrice (2010), and ZB (2004).

[71] Expert Report of Peter Adriaens, October 3, 2021 at 9.

[72] Worldcore. Worldcore ICO. https://worldcore.com/

"enabled" by Ripple's substantial efforts. Based on my experience in digital asset technology, I would expect a technology with a "breadth and depth of commercial value," as Professor Adriaens attributes to XRP and the XRP Ledger, to generate adoption by third-party businesses beyond those who are subsidized, incentivized, or funded by Ripple.

3.3. Professor Adriaens' Methodology

57. Professor Adriaens identifies the list of 91 Businesses as follows: First, Professor Adriaens begins with a list of 660 entities, listed in Appendix C to his Report, which he describes as "660 use cases for XRP or the XRP Ledger." This list was provided to Professor Adriaens by defense counsel.[73]

58. Professor Adriaens appears to have accepted without any inquiry that the list of 660 entities identified by defense counsel in fact employ XRP or the XRP Ledger in some way. Based on this assumption, Professor Adriaens appears to conclude that these entities reflect "use cases" for XRP or the XRP Ledger.

59. Professor Adriaens does not define the phrase "use case" in his report. In my opinion, and in the context of Professor Adriaens' report, a "use case" would entail a distinct way of using XRP or the XRP Ledger within a product or service that provides value to its users. The businesses that might develop such products and services are not necessarily themselves "use cases," however. For example, Ripple touts the "use case" of XRP as a bridge asset for cross-border transfers.[74] But the companies that have in the past employed XRP as part of cross-border transactions, e.g., MoneyGram, are money transmitters whose businesses exist separate and apart from any connection with XRP. Professor Adriaens conflates the two concepts,

[73] ibid.
[74] Expert Report of Peter Adriaens, October 3, 2021 at 70.

describing the 91 Businesses as "use cases," but this Rebuttal report appropriately distinguishes between the two.

60. Professor Adriaens begins his inquiry by applying the following three criteria to filter the list of 660 entities down to the 91 Businesses:

i. whether the company received equity investment funding according to Crunchbase, a website that tracks the investments received by startups and technology firms;[75]

ii. whether the company was founded before XRP came into existence, in order to exclude "companies that could not have been started as the result of adopting the XRP Ledger or XRP;"[76] and

iii. whether the company should be classified as being "powered by the XRP Ledger" or, alternatively, "support[ing] the cryptocurrency XRP for payments or other commercial uses."[77]

61. Professor Adriaens does not appear to have assessed whether any of these 660 entities should be excluded from this analysis on the basis of being "enabled by Ripple," which by his own definition includes businesses that have benefited from Ripple's "developer tools and their partnerships, investments, and acquisitions."[78]

62. Finally, Professor Adriaens computes a total amount of $6 billion in equity investment (which Professor Adriaens later erroneously refers to as "venture capital,"[79] even though not all funding originated through a venture capital round) raised by these 91 Businesses

[75] Crunchbase. https://www.crunchbase.com
[76] Expert Report of Peter Adriaens, October 3, 2021 at 64.
[77] ibid.
[78] Expert Report of Peter Adriaens, October 3, 2021 at 62.
[79] Expert Report of Peter Adriaens, October 3, 2021 at 65.

up until June 2021.[80] Professor Adriaens suggests that this equity investment figure "provide[s] information on the value proposition of" XRP and the XRP Ledger.[81]

3.4. Methodology Used in this Rebuttal to the Report of Professor Adriaens

63. To test Professor Adriaens' opinion that the 91 Businesses provide evidence of "the value proposition" or "commercial utility" of XRP or the XRP Ledger, this Rebuttal Section seeks to examine whether any link exists between equity investment received by the 91 Businesses and their purported use of XRP or the XRP Ledger. To do this, I assessed the extent to which the 91 Businesses cited by Professor Adriaens are "powered by the XRP Ledger" or support XRP for "payments or other commercial uses" in a manner core to the business model of each company. I considered XRP or the XRP Ledger core to a business model if its major products, services, or operations rely on XRP or the XRP Ledger to function. Where possible, I also considered the extent to which equity investment raised, the metric chosen by Professor Adriaens, was likely to be driven by XRP or XRP Ledger-related products or services, such that the equity investment reasonably could be interpreted as a recognition of the "breadth and depth" of the value of XRP and the XRP Ledger.

64. To make the determinations described above, I reviewed each of the 91 Businesses which Professor Adriaens asserts represents a "use case," including visiting websites provided by Professor Adriaens, reviewing the Crunchbase investment data on which he relied, performing additional research on the companies as necessary such as reviewing press releases and relevant public representations, and, based on the foregoing sources, evaluating the business model and practices of each business. I then assessed whether, based on my expertise in digital

[80] Expert Report of Peter Adriaens, October 3, 2021 at 64.
[81] Expert Report of Peter Adriaens, October 3, 2021 at 66.

asset markets and digital asset technologies, XRP or the XRP Ledger were core to the business model of each company such that it would be appropriate to interpret venture capital and other funding as an endorsement of the "value" of XRP or the XRP Ledger, as Professor Adriaens opines. For organizational purposes, I also identified four overarching categories to which the 91 Businesses belong – payments, trading/financial services, blockchain technology, and money transfer – and classified each into the appropriate category. A complete review of each of the 91 Businesses, including the information I used to determine its relationship to XRP or the XRP Ledger is provided in Appendix F.

3.5. Main Findings

65. Based on my review of the 91 Businesses, as described above, and on my expertise in evaluating digital assets and their possible "use cases," I conclude that XRP and the XRP Ledger are not core to the business model of the vast majority of the 91 Businesses such that funding raised by these businesses can support Professor Adriaens' opinions. As can be seen in Table 6, for 88 out of the 91 Businesses, XRP or the XRP Ledger are not core to their business. My rationale for making this determination involves, among other things, several different ways in which Professor Adriaens erred in attributing the equity investment raised by these businesses to the "breadth and depth" of the commercial value of the XRP Ledger and XRP. For example, eight of the 91 Businesses were companies founded before 2012, and thus should have been excluded according to Professor Adriaens' own methodology.[82] Inexplicably, four of the 91 Businesses were companies that Professor Adriaens previously discussed in Section IV.B of his report, which pertained to businesses "enabled" primarily by Ripple's

[82] Expert Report of Peter Adriaens, October 3, 2021 at Appendix D and Crunchbase. https://www.crunchbase.com. The eight companies founded before Ripple are BitPay (2011), Bitstamp (2011), Ecwid (2009), Plus500 (2008), Shopify (2004), Viamericas (1999), WeMakePrice (2010), and ZB (2004).

"partnerships, investments, and acquisitions."[83] Four were companies that are no longer in business and/or had websites that were inactive.[84] For at least two of the 91 Businesses, the URL listed by Professor Adriaens in Appendix D of his report links to the wrong company, albeit with the same or similar name, which indicates that Professor Adriaens misattributed the equity investment raised by another company to the company purported to be using XRP or the XRP Ledger.[85] Finally, 46 of the 91 Businesses were exchanges and other platforms for which XRP was one of many digital and other assets available to trade, as I discuss in the following Sections.

66. It is important to note here that the three out of the 91 Businesses which may have actually had XRP or the XRP Ledger as part of their core business model all received funding, incentives, and/or subsidies from Ripple. Two of these companies, Coil (classified as payments for goods and services) and Flare Networks (classified as blockchain technology), have received significant investments from Ripple.[86] In addition, in 2019, Coil, which is led by Ripple's former Chief Technology Officer, Stefan Thomas, also received a 1 billion XRP grant from Ripple, equivalent to $265 million at the time the grant was announced.[87] The other remaining company classified as potentially having XRP or the XRP Ledger as core to its business model is SendFriend. SendFriend's agreements to adopt ODL included volume incentives and rebates,[88] but I was not able to verify whether SendFriend is still using ODL or whether ODL is core to its

[83] Expert Report of Peter Adriaens, October 3, 2021 at 64. The four companies which Professor Adriaens had previously discussed as being "enabled by Ripple" are BitPay, BRD Wallet, Chainalysis, and Anchorage.
[84] Expert Report of Peter Adriaens, October 3, 2021 at Appendix D. The four companies which were defunct or had inactive websites were Tripio, Bpay, Crumbsapp, and SendFriend.
[85] ibid. The two companies with apparently incorrect URLs are STYRA Technologies and Harbor (in the latter case, the apparently intended company was SecureBlockchains which had a now-defunct product called Harbor).
[86] Ripple's general ledger includes a payment to Coil Technologies of $2,000,000 on November 5, 2018, with the description, "Investment - Coil 11.2018," and a payment to Flare Networks of $95,160.30 on December 24, 2020, with the description, "Flare Networks Limited - follow-on investment in ordinary shares." (Ripple. Cash Accounts Ripple Labs all years GL report (2014-2020). (RPLI_SEC 1102015)).
[87] Coindesk. Ripple to Give Away 1 Billion XRP in Massive Bid to Fund Online Content (2019). https://www.coindesk.com/ripple-is-giving-away-1-billion-xrp-in-massive-bid-to-fund-online-content.
[88] Ripple, XRP Volume Incentive Agreement with SendFriend Inc.(2019). (RPLI_SEC 0296868). Ripple, Ripple Work Order (for Send Friend Inc.'s implementation of xRapid) (2018) (RPLI_SEC 0233518).

operations because its website is currently inactive.[89] According to Professor Adriaens' own methodology, companies "enabled" by Ripple's "partnerships, investments, and acquisitions" should have been discussed in Section IV.B of his report, rather than as part of his analysis of "other individuals and companies" by which he defined the list of 91 Businesses considered in this report.

67. The proceeding Sections will discuss these findings for each category of the 91 Businesses.

Table 6. Categorization of 91 Businesses

Category	XRP(L) Potentially Core to Business	XRP(L) Not Core to Business
Payments for goods and services	1	37
Trading platforms/financial services	0	32
Blockchain technology	1	14
Money transfer	1	5
Total	**3**	**88**

3.5.1. Payments for Goods and Services

68. Payments for goods and services is the largest category among the 91 Businesses listed by Professor Adriaens. This category consists of i) goods and services vendors, and ii) payment processors that partner with vendors to allow customers to purchase goods and services using digital assets.

69. None of the goods and services vendors I analyzed exclusively accept XRP as a form of payment. For example, LuckyFish is an online casino that currently accepts 22 different digital assets as payment types.[90] Bitgild enables customers to buy gold using 18 different digital assets. Tapjets, one of the businesses highlighted by Professor Adriaens, accepts four other

[89] SendFriend. https://www.sendfriend.io/.
[90] LuckyFish. About LuckyFish. https://luckyfish.io/faq#aboutLuckyFish.

digital assets[91] and also accepts payment in fiat (prices on its homepage are displayed in U.S. Dollars).[92] It is inappropriate to attribute the "commercial value" of XRP and the XRP Ledger to the equity investment raised by businesses such as these because there is no basis to conclude that their operations or revenues are reliant in any way on their acceptance of XRP as payment.

70. It is similarly inaccurate to attribute the total equity investment raised by payment processors as demonstrating the value of XRP and the XRP Ledger. The payment processors listed by Professor Adriaens all support payments using a wide range of digital assets. For example, Crypto.com's "Pay for Business" product allows customers to pay in over 30 digital assets, while for CoinPayments this number exceeds 100.[93]

71. Other payment processing companies listed by Professor Adriaens have little or no connection to XRP whatsoever. For example, Professor Adriaens cites the payment processing business SpotOn, which received $315 million in venture capital funding[94] yet does not appear to support XRP for "payments or other commercial services." SpotOn provides technology for small businesses, including mobile payments, loyalty and reward programs, restaurant management systems, appointment scheduling, and online ordering.[95] SpotOn's website, listed in Appendix D of the Adriaens Report, has no mention of XRP or any application of XRP Ledger technology to its products.[96]

72. A potential connection to XRP identified by my analysis is that SpotOn announced in 2018 that it "will soon" launch a partnership with VaultBank that "empowers the

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[91] TapJets. TapJets Instant Booking Platform Now Accepts Monero. https://www.tapjets.com/article/private-jet-pay-with-monero.
[92] TapJets. Tapjets Home Page. https://www.tapjets.com/
[93] Crypto.com. Merchant Platform Info. https://crypto.com/us/pay-merchant; CoinPayments. List of Supported Cryptocurrencies. https://www.coinpayments.net/supported-coins.
[94] Expert Report of Peter Adriaens, October 3, 2021 at Appendix D – List of Third-Party Use Cases.
[95] SpotOn. SpotOn Home Page. https://www.spoton.com/.
[96] There is no mention of XRP or digital assets on SpotOn's homepage, and a Google search of SpotOn's site for the term "XRP" returns no web pages, as seen at: https://www.google.com/search?q=site%3Aspoton.com+xrp.

customer to pay in whatever digital currency they want, while the merchant gets paid in what they want, dollars."[97] However, I see no evidence that this feature was ever released given that VaultBank is now defunct and that there is no mention of digital assets in SpotOn's list of products.[98][99]

3.5.2. Trading Platforms and Financial Services

73. The next most frequently occurring type of business cited by Professor Adriaens is trading platforms and financial services providers, which generally involve the purchase, sale, trading, or lending of digital assets such as XRP. In this category are digital asset trading platforms such as Bitstamp and Liquid, which advertise on their homepages the ability for investors to "Buy & trade" or "Buy, Sell & Trade" digital assets.[100] These trading platforms typically offer investors the ability to place different types of orders to buy and sell assets. In my experience, the primary applications of digital assets (including, presumably, XRP) on these platforms are the purchase of such assets as an investment and the trading of such assets for fiat and other digital assets. There is no indication that these platforms are "powered by the XRP Ledger" or use XRP for "payments or other commercial services" to add significant value to the trading platforms' products, services, or operations.

74. The financial services businesses offer a somewhat broader range of products or services that in some cases involve XRP, and also commonly relate to investment purposes.

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[97] SpotOn. SpotOn press release (2018). https://spoton.com/blog/spoton-enables-merchants-to-accept-cryptocurrency-with-vaultbank-partnership/

[98] The URL to VaultBank's website provided in the 2018 SpotOn press release, http://www.vaultbank.io/, results in a "Server not found" message.

[99] Ripple apparently provided SpotOn with marketing incentives and incentives to use ODL, but evidence was not found that SpotOn actually used ODL: RippleNet Marketing Incentive Agreement with SpotOn Money Limited, (RPLI_SEC 0716185); Ripple Work Order with SpotOn Money Limited, March 22, 2019 (RPLI_SEC 0075376); and ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162.

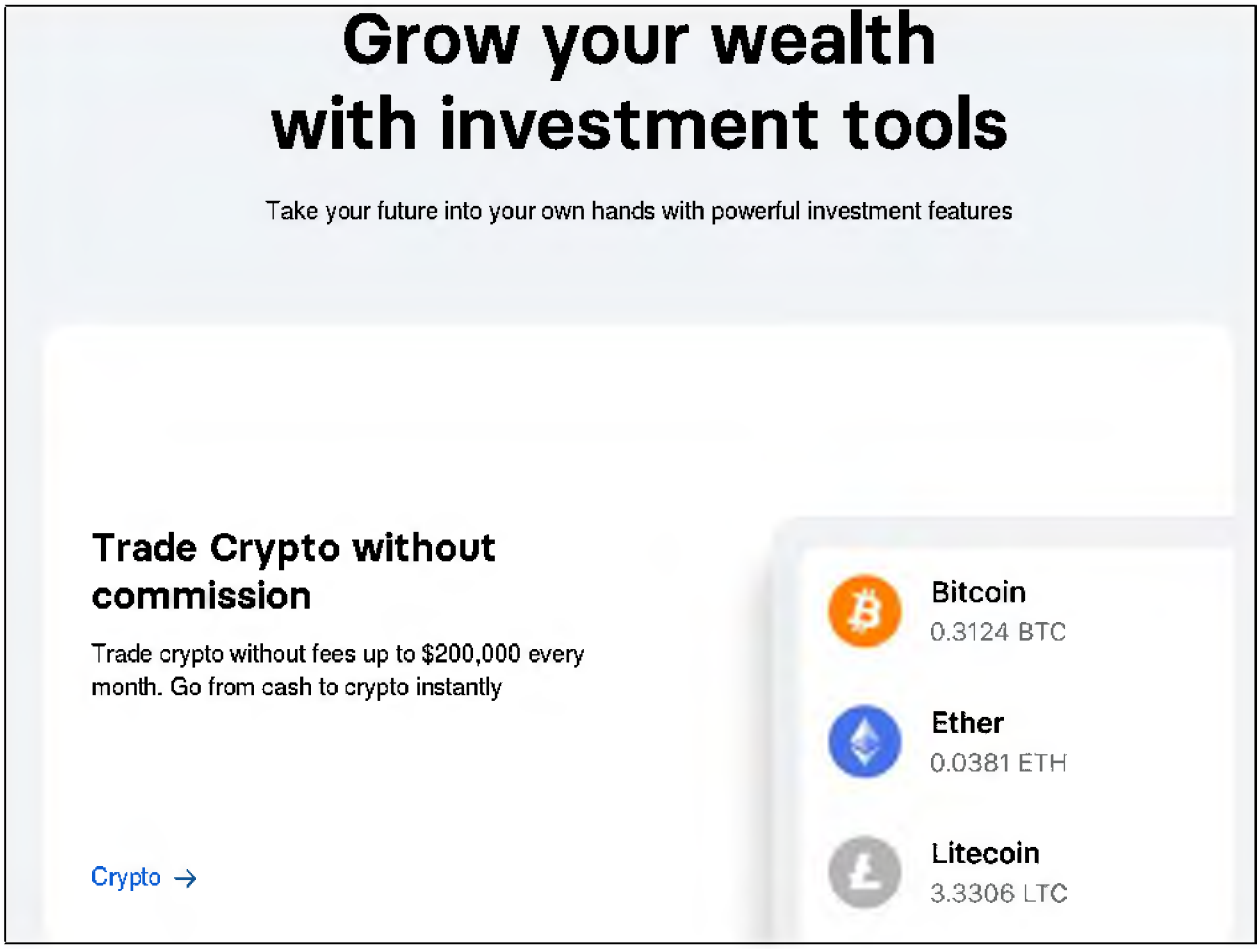
[100] Language taken from the homepage of two of the trading platform businesses: Bitstamp. Bitstamp Home Page. https://www.bitstamp.net/, and Liquid. Liquid Home Page. https://www.liquid.com/.

These include earning interest on XRP deposits on CoinLoan,[101] gaining exposure to "alternative investments" with Securitize, Inc.,[102] and simply buying and holding digital assets, including XRP, as an "investment tool" to "grow your wealth" as advertised by Revolut.[103] Neither XRP nor the XRP Ledger are core to the operation of these trading platforms and financial services businesses – which offer identical products and services for any number of digital assets, not just XRP – and thus there is no reason to believe these businesses would not have received equity investment if the XRP Ledger or XRP did not exist.

75. As mentioned above, in this category is Revolut, the largest recipient of equity investment among the 91 Businesses. According to Appendix D in the Adriaens Report, Revolut raised $905.5 million (according to Crunchbase, as of June 2021, Revolut had raised $901.3 million).[104] On Revolut, customers use different financial services including budgeting, single-use payment cards,[105] and personal vaults to set money aside for saving up for larger purchases.[106] With respect to digital assets, Revolut supports buying and selling over 50 different digital assets, including XRP, as an investment. For example, in the "Grow your wealth with investment tools" section on Revolut's homepage, as shown in Figure 8, Revolut advertises in particular the ability to trade digital assets.

[101] Coinloan. Earn With Coinloan. https://coinloan.io/earn-interest/.
[102] Securitize. Securitize Home Page. https://securitize.io/.
[103] Revolut. Revolut Home Page. https://www.revolut.com/en-US.
[104] Crunchbase. Revolut Company Financials. https://www.crunchbase.com/organization/revolut/company_financials.
[105] This is a feature to prevent fraudsters from reusing credit card numbers when customers shop online.
[106] Revolut. Revolut Home Page. https://www.revolut.com/en-IT.

Figure 8. Excerpt from Revolut Homepage.[107]



76. Given that Revolut offers a wide range of financial services and investment-related activities, including trading of at least 50 digital assets, I have seen nothing to suggest that trading of XRP specifically is core to its business model. Moreover, as discussed previously, trading does not evidence that Revolut is "leveraging" XRP or the XRP Ledger.

77. Finally, it appears that even Revolut's minimal connection to XRP was promoted and enabled by Ripple, which sold XRP to Revolut at discounted rates as part of what Ripple

[107] Revolut. Revolut Home Page. https://www.revolut.com/en-US.

characterized as a "strategically important" relationship between the two companies that promised "significant mutual future value."[108]

78. Plus500, another business cited by Professor Adriaens, [109] is a trading platform where investors can trade 15 digital assets, 25 currencies, 29 indices, 22 commodities, 1,635 stocks, 532 options, and 95 ETFs.[110] Professor Adriaens also overlooks that Plus500 was founded in 2008, five years before the launch of the XRP Ledger, and did not even list XRP until 2017.[111] Based on the limited role that XRP played (as one of over two thousand tradeable investments) on Plus500, I see no evidence that the $152 million in post-IPO equity that the company raised[112] represents any endorsement of the value of XRP or the XRP Ledger. The other trading platform and financial services businesses cited by Professor Adriaens similarly allow trade and deposit of many other assets and are not dependent on XRP for their operations (which primarily involve investment-related activities).

79. Another of the 91 Businesses, Celsius Network, which has received $93.8 million in venture funding according to Professor Adriaens, enables investors to earn interest on over 40 digital assets.

3.5.3. Blockchain Technology

80. I next consider companies within the 91 Businesses that are related to blockchain technology more broadly, providing products or services related to the blockchain which do not

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[108] Email from Markus Infanger, Ripple Senior Director of Institutional Markets – EMEA, December 23, 2018 (RPLI_SEC 0981977); Email from Miguel Vias, Head of XRP Markets, October 22, 2018 (RPLI_SEC 0116040); and Summary of XRP Purchase by Revolut Ltd., December 20, 2018 (RPLI_SEC 0263043).
[109] Expert Report of Peter Adriaens, October 3, 2021 at Appendix D – List of Third Party Use Cases.
[110] Plus500. Plus500 All Instruments. https://www.plus500.com/en-US/Instruments. At the time of this report, XRP was not listed on Plus500.[110]
[111] XRP Chat. Discussion of XRP listing for short term trading on Plus500. https://www.xrpchat.com/topic/6549-ripple-xrp-added-to-plus500-trading-platform/
[112] CrunchBase.Plus500 Company Financials. https://www.crunchbase.com/organization/plus500/company_financials

fall under the previously discussed payment processing and exchange/financial services categories. Of the 15 such companies cited by Professor Adriaens in his report, seven are digital asset wallets, which are software or physical devices that allow one to receive, send, and maintain custody of digital assets. Based on my analysis, all of the wallets offered by businesses in this category provide custody of multiple digital assets, not just XRP. For example, Exodus and BRD support over 150 and over 75 digital assets respectively.[113] There is no reason to believe that XRP specifically is core to the function or success, including in raising investment, of any of these businesses. BRD, which raised $54.8 million between 2015 and 2019 according to Crunchbase, did receive a $750,000 investment from Xpring in 2019.[114] As part of their partnership, BRD and Ripple discussed joint marketing efforts to "promot[e] XRP on a global basis."[115]

81. Also in this category is Chainalysis, which licenses a digital asset "investigation and transaction monitoring" software that is used by government agencies and compliance teams to track the flow of digital assets.[116] XRP and the XRP Ledger technology are not core to Chainalysis' business model; rather, Chainalysis provides a software tool that its customers, such as law enforcement agencies, can employ to use public blockchain data to trace the flow of digital assets under various scenarios, such as money laundering.[117] As seen in Figure 9, XRP is one of many digital assets which can be traced using Chainalysis' software. In fact, support for XRP was only added in February 2020,[118] six years after the company was founded and after it

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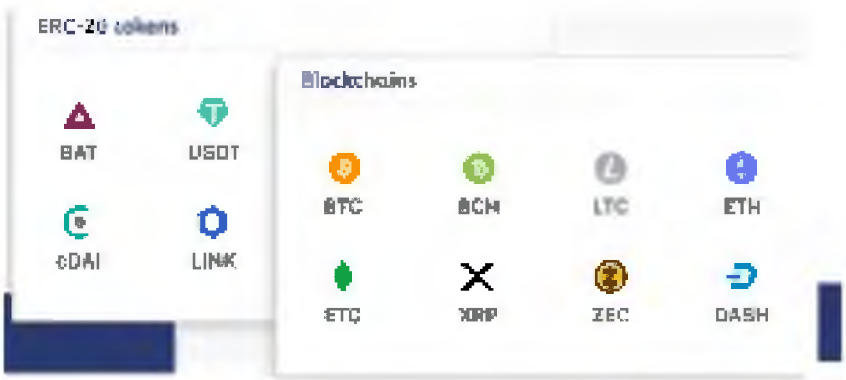
[113] Exodus. Exodus Home Page. https://www.exodus.com/ and BRD. BRD Home Page. https://brd.com/.
[114] CrunchBase. BRD Company Financials. https://www.crunchbase.com/organization/brd/company_financials
[115] Email from Spencer Chen, BRD Chief Marketing Officer, November 5, 2019 (RPLI_SEC 0470368).
[116] Chainalysis. Chainalysis Home Page. https://www.chainalysis.com/.
[117] Reuters. Roughly $400 million of Ripple tokens tied to illegal activity[redacted] https://www.reuters.com/article/us-crypto-currencies-ripple/roughly-400-million-of-ripple-tokens-tied-to-illegal-activity[redacted]idUSKBN1XU1NJ
[118] XRP Arcade. Chainalysis adds support for XRP (2020). https://www.xrparcade.com/news/chainalysis-adds-support-for-xrp/

had already completed five rounds of venture funding.[119] As such, Professor Adriaens again misattributes the equity investment received by Chainalysis to the "breadth and depth of value" of XRP and XRPL technology.

Figure 9. Examples of Digital Assets Traced by Chainalysis Software.[120]



82. Blockchain technology businesses also include software companies that in the past have had a financial relationship with Ripple, but do not currently appear to use XRP or the XRP Ledger. For example, in 2019 Ripple invested in Agoric to build smart contracts;[121] however, analysis of Agoric's website reveals that they currently use the Tendermint consenus engine (not the XRP Ledger) as their consensus mechanism.[122] Another blockchain technology business, Bluzelle, also uses Tendermint for consensus and has no mention of XRP on its website.[123]

83. Similarly, in 2016, Ripple partnered with R3 – a provider that helps financial institutions adopt blockchain technology[124] – to conduct a trial run of using XRP for cross-border

[119] Crunchbase. Chainalysis Organization Info. https://www.crunchbase.com/organization/chainalysis
[120] Chainalysis. Chainalysis Data. https://www.chainalysis.com/chainalysis-data/.
[121] Ripple. Ripple Investing in Agoric. https://ripple.com/insights/investing-in-agoric/.
[122] Agoric. Agoric Under the Hood. https://agoric.com/tech/.
[123] Bluzelle. Bluzelle Home Page. https://bluzelle.com/; a google search for "XRP" on its website does not return any pages, as seen at: https://www.google.com/search?q=site%3Abluezelle.com+xrp.
[124] R3. R3 History. https://www.r3.com/history/.

payments,[125] and Ripple provided significant compensation to R3 for its efforts. However, today it does not appear that R3 is "powered by the XRP Ledger" or supports XRP "for payments or other commercial uses." None of the 14 case studies profiled on its website feature any use case involving XRP or the XRP Ledger.[126]

84. In addition, Professor Adriaens includes STYRA Technologies in his list of 91 Businesses, designating it an "Interledger gateway provider," and in Appendix D of his report he states that the company raised $50 million in equity investment and has the URL *www.styra.com*.[127] However, the Report conflates "STYRA Technologies" with "Styra," a different company that provides authorization solutions for cloud applications[128] and that raised over $50 million in venture funding.[129] The actual "STYRA Technologies" was an early stage technology startup that sought to develop solutions in conjunction with Ripple's Interledger Protocol and that had the URL *www.styra.co*. [130] It is now apparently defunct.[131]

3.5.4. Money Transfer

85. The final category that I identify are companies whose core product offering relates to money transfer. All six of the money transfer companies listed by Professor Adriaens in his report received significant funds from Ripple, either in the form of direct investment by Ripple or incentives and subsidies for using Ripple's ODL product.

86. Five out of the six companies primarily involve money transfer companies using ODL to facilitate cross-border payments. For four of these five (Azimo, MoneyMatch,

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[125] Ripple. Ripple and R3 Team Up with 12 Banks to Trial XRP for Cross-Border Payments. (2016). https://ripple.com/insights/ripple-and-r3-team-up-with-12-banks-to-trial-xrp-for-cross-border-payments/.
[126] R3. R3 Case Studies. https://www.r3.com/case-studies/.
[127] Expert Report of Peter Adriaens, October 3, 2021 at Appendix D – List of Third Party Use Cases.
[128] Styra. Styra Home Page. https://www.styra.com/.
[129] Crunchbase. Styra Organization Info. https://www.crunchbase.com/organization/styra.
[130] SlideShare. Strya Slides from NOAH Conference (2019). https://www.slideshare.net/NOAHAdvisors/styra-technologies-noah19-berlin.
[131] ibid; the URL listed in the STYRA Technologies presentation, styra.co, returns a message, "Server not found."

TransferGo, and Viamerica), ODL – and by extension XRP and the XRP Ledger – is not core to their business model because they enable cross-border payments between many other payment corridors in addition to the few supported by ODL. For example, Azimo enables its customers to make cross-border payments to "200+ countries and territories,"[132] and only uses ODL to enable its transfers on a single corridor (USD-PHP).[133] It was not possible for me to determine whether ODL is core to the business operations of the fifth purported "use case" involving ODL, SendFriend, because its website was inactive at the time of this Rebuttal report's writing.

87. Also, Professor Adriaens claims that his methodology "eliminates companies that could not have been started as the result of adopting the XRP Ledger or XRP."[134] Yet, of these five, Azimo, TransferGo, and Viamericas were all founded prior to 2013; for example, Viamericas was founded in 1999, and its last reported funding round was in 2014,[135] five years before it started using ODL.[136] Even if these companies eventually used ODL, it is inappropriate to conclude that they could have been "started as the result of adopting the XRP Ledger or XRP" (since they were founded before XRP existed) or that their total equity investment raised (much of which predates any use of ODL as discussed above)[137] is an assessment of the "breadth and depth of the commercial value" of ODL, XRP or the XRP Ledger.

88. Moreover, companies using ODL are subsidized by Ripple, and it would not be economically viable for them to use ODL without subsidies (without which, payment using traditional fiat channels is cheaper as discussed in Section 2.6). Table 7 provides a summary of

[132] Azimo. Azimo Home Page. https://azimo.com/en/countries.
[133] ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162.
[134] Expert Report of Peter Adriaens, October 3, 2021 at 64.
[135] Crunchbase. Viamericas Organization Info. https://www.crunchbase.com/organization/viamericas.
[136] Ripple. RippleNet Growth: Announcing More Than 300 Customers (2019). https://ripple.com/insights/ripplenet-growth-announcing-more-than-300-customers and Ripple. Ripple Work Order (Viamericas, 2019). (RPLI_SEC 0187130).
[137] ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162.

the incentives and subsidies paid in XRP by Ripple to these five ODL "use cases" in 2020. In my opinion, this demonstrates that any "use" by these companies of ODL, XRP or the XRP Ledger was "enabled" by Ripple and thus, once again, does not reflect the "breadth and depth of the commercial value" of ODL, XRP, or the XRP Ledger.

Table 7. XRP Incentive Payments and Subsidies Paid by Ripple, as Recorded in 2020 Ripple XRP Payment Details Spreadsheet.[138]

89. The remaining money transfer company is MoneyTap, which is a mobile app developed for the Japanese market that facilitates domestic payments.[139] The MoneyTap app does not "leverage" XRP or the XRP Ledger; rather, it uses Ripple's xCurrent technology – which operates apart from the XRP Ledger[140] – to facilitate the settlement of domestic payments in Japanese Yen between Japanese banks.[141] MoneyTap was launched by SBI Ripple Asia, a joint venture between Ripple and SBI (a Japanese financial services company),[142] and Ripple is a large investor in MoneyTap,[143] which means that MoneyTap's existence is not independent of

[138] Ripple, Ripple XRP Payment Details Spreadsheet (2020), (RPLI_SEC 0304725). 2020 XRP payments tabulated from "TX" tab in the spreadsheet for ODL customers if "USE OF FUNDS" listed "Adoption marketing," "Fx rebate," or "Incentive." U.S. Dollar equivalent calculated using the USD-XRP exchange rate on the date the XRP was noted as transferred in the "TX" tab of the spreadsheet. USD-XRP exchange rate used is the daily closing price from www.coinmarketcap.com.
[139] ibid.
[140] xCurrent runs on Ripple's Interledger Protocol (ILP), not the XRP Ledger. Ripple. Ripple xCurrent Brochure (2017). https://ripple.com/files/xcurrent_brochure.pdf.
[141] ibid.
[142] CoinDesk. Ripple to Invest in Japan's SBI Subsidiary MoneyTap (2020). https://www.coindesk.com/markets/2020/10/29/ripple-to-invest-in-japans-sbi-subsidiary-moneytap/.
[143] SBI Holdings. Notice of the Completion of Ripple's Investment in Money Tap Co., Ltd. (2021). https://www.sbigroup.co.jp/english/news/pdf/2021/0129_c_en.pdf.

Ripple's efforts and thus MoneyTap is not a "third-party use case"[144] that can support Professor Adriaens' argument.

[144] Expert Report of Peter Adriaens, October 3, 2021 at Appendix D – List of Third Party Use Cases.

4. REBUTTAL TO PROFESSOR YADAV'S REPORT

4.1. Assignment

90. In this Section, I have been asked by the SEC to review and comment on Professor Yadav's opinion that, for the majority of the digital asset platforms she discusses in her report, there is no indication that any offers to sell, and subsequent sales of, digital assets on those platforms were made or became final in the United States.[145,146] In particular, I was asked to analyze the extent to which Ripple's offers and sales of XRP involved entities, individuals, and actions in the U.S.[147] As Professor Yadav spends a considerable portion of her report discussing the location of digital asset platforms, for simplicity I will refer to Professor Yadav's classification of digital asset platforms with "some indicia of a U.S. presence" as "U.S.-Classified Platforms" and the remaining digital asset platforms as "Foreign-Classified Platforms." However, this report's use of these terms to reflect Professor Yadav's conclusions does not signify my adoption or endorsement of those conclusions.

4.2. Summary of Findings

91. Based on my review and analysis of Professor Yadav's Report, Ripple's public statements made throughout the Issuance Period, documents produced by Ripple and related parties, blockchain analysis of the XRP Ledger, and on my professional experience in the digital asset space, I conclude the following:

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[145] Expert Report of Yesha Yadav, October 4, 2021 at 54.

[146] This report uses the term "digital asset platform" to refer to the off-blockchain trading venues where investors can trade digital assets in exchange for fiat currency or other digital assets. When Yadav uses the term "cryptocurrency exchange," I understand her to refer to the same off-blockchain trading venues. "Off-blockchain" trading venues are those that operate on private servers and are in contrast to the on-ledger platform on the XRP Ledger where investors can trade digital assets in exchange for fiat currency or other digital assets.

[147] Professor Yadav does not limit her opinion to offers and sales of XRP, but her opinion encompasses such offers and sales that take place on digital asset platforms and she references XRP and XRP trading on digital asset platforms throughout her report, as seen in paragraphs 59, 69, 70, 71, 72, 73, 91, and 110.

92. First, Professor Yadav takes an extremely narrow view of where *offers* for the sale of a digital asset are made by focusing solely on where trade *orders* are placed and executed. Professor Yadav ignores the entire process whereby a digital asset is offered for sale. As it relates to Ripple's programmatic sales of XRP, Ripple's offering of XRP for sale includes far more than any particular consummated trade order; its offering involved entities and individuals located in the United States, and much of the offering process involved actions from within the United States. The offering process for Ripple's sales of XRP on digital asset platforms: i) involved sales by Ripple, a U.S. company, ii) included promotional activity in the U.S., iii) targeted purchasers worldwide including those in the U.S., iv) were offered to U.S. purchasers both at U.S.-Classified Platforms and at Foreign-Classified Platforms, and v) involved sales proceeds that were pooled into Ripple's U.S.-based bank account to fund Ripple's operations, including those in the U.S.

93. Second, a review of Foreign-Classified Platforms reveals that U.S. purchasers either directly or indirectly bought XRP on Foreign-Classified Platforms where Ripple sold XRP. The three Foreign-Classified Platforms where Ripple sold the most XRP, Bitstamp, Binance, and Bithumb, did not prohibit U.S. purchasers from using their platforms – and by extension from transacting in XRP – until the fall of 2020, at the earliest. As such, known U.S. residents and entities have traded XRP on Foreign-Classified Platforms where Ripple sold XRP, including Chris Larsen, Brad Garlinghouse, and [redacted]"), one of Ripple's U.S.-based market makers. In addition, at least $6 billion worth of XRP has flowed from Foreign-Classified Platforms where Ripple sold XRP to U.S.-Classified digital asset platforms.

94. Third, Professor Yadav's assessment of digital asset platforms with "some indicia of a U.S. presence"[148] is inconsistent and unreliable. For U.S.-Classified Platforms only, Professor Yadav introduces two new indicia for determining the location of a digital asset platform: i) the presence of a foreign-affiliated company, and ii) different terms of service or separate stipulations for residents in a different country. She selectively uses these two indicia to argue that it is not possible to conclude that trades occurring on U.S.-Classified Platforms are located in the U.S. because U.S. Classified Platforms may have foreign affiliates or separate terms of services for foreign residents. However, she does not apply these two other indicia to Foreign-Classified Platforms, and thus cannot definitively conclude that trades occurring on those platforms took place outside of the U.S. Indeed, two of the Foreign-Classified Platforms where Ripple sold the most XRP, Binance and Bitstamp, either have a U.S.-affiliate (Binance.US) or separate terms of service for U.S. residents (Bitstamp USA Inc.). In another instance, also as it relates to her assessment of U.S.-Classified Platforms, Professor Yadav ignores her own methodology by relying on the conjecture of one individual to argue that a U.S.-Classified Platform might be located overseas, instead of on her own criteria which clearly refute such an opinion.

95. Fourth, the four indicia used by Professor Yadav to determine the geographic location of digital asset trading platforms critically omit a key factor – the location of a digital asset platform's servers. Professor Yadav actually mentions a digital asset platform's servers as a "potential indicia of location," and gives weight to this indicium by listing it alongside other indicia that were actually employed in determining the location of a digital asset platform. For example, she provides the example of Bitstamp as an exchange with indicia pointing to different

[148] Expert Report of Yesha Yadav, October 4, 2021 at 54.

locations, since the location of its registered office, its principal place of business, and its servers are all in different countries.[149] However, while the location of a digital asset platform's registered office and principal place of business are included among the four indicia used by Professor Yadav to determine the location of a digital asset platform, her report excludes the location of a platform's servers in the analysis that is summarized in Table A of her report. Importantly, Professor Yadav does not opine that every server belonging to a Foreign-Classified Platform is located outside of the U.S., and she thus does not show that any trade involving Ripple's sales of XRP on digital asset platforms did not take place in the U.S.[150]

96. Fifth, in Table A of her report, Professor Yadav critically ignores another platform used by Ripple to sell XRP, which is the XRP on-ledger trading platform hosted in the XRP Ledger.[151] The XRP Ledger is validated and recorded by servers which were exclusively located in the U.S. until 2018 and the majority of which continued to be located in the U.S. during the Issuance Period. Thus, Ripple's sales of XRP on the XRP on-ledger platform were submitted, traded and finalized on servers in the U.S.

97. Lastly, Ripple also offered XRP for sale through over the counter ("OTC") sales. Ripple's OTC sales involved selling XRP from XRP II LLC, a company registered in both South Carolina and New York during the Issuance Period, to institutions and individuals, including those based in the U.S., and did not include any restrictions to prevent resale to U.S. purchasers, including on digital asset platforms.

[149] Expert Report of Yesha Yadav, October 4, 2021 at 55.
[150] Professor Yadav mentions that Bitstamp has servers in Ireland and Germany but does not provide any citation (Expert Report of Yesha Yadav, October 4, 2021 at 71).
[151] Expert Report of Yesha Yadav, October 4, 2021 at 59-67.

4.3. Professor Yadav's Report's Methodology and Findings

98. Professor Yadav refers to her assignment as follows: "to provide an opinion on whether offers to buy and sell cryptocurrencies like XRP, trading on an exchange, take place on the exchange itself or elsewhere."[152] The methodology used by Professor Yadav involves first examining the process whereby digital asset orders and trades are placed and executed on digital asset platforms. She finds that such trades "become final and binding [] where exchanges match buy and sell orders in accordance with the rules of the exchange."[153] She then concludes that "this" – seemingly, that the rules of a digital asset platform determine when a trade becomes final and binding[154] – determines where the trade becomes final and binding, which is, in Professor Yadav's view, "the jurisdiction where an exchange is geographically located to match trades."[155] Notably, despite extensive discussion of the mechanics of the trading process and the electronic trading systems employed by digital asset platforms, she does not offer an opinion on where trades are submitted, processed, matched, or recorded. Instead, Professor Yadav provides a set of four "indicia" which she argues should be used to determine the location of a digital asset platform: i) the digital asset platform's "place of business, registered office and domicile," ii) the location mentioned in the digital asset platform's terms of service, iii) the location that "market participants and the public believe the [digital asset platform] does business," and iv) the location that "regulators believe [a digital asset platform] is located."[156] Without further explanation or evidence, she assumes that the trades on a digital asset platform take place where the digital asset platform is purportedly located, using her indicia. She then she concludes that for 21 of the 25

[152] Expert Report of Yesha Yadav, October 4, 2021 at 39.
[153] id. at 54-55.
[154] ibid.
[155] ibid.
[156] Expert Report of Yesha Yadav, October 4, 2021 at 55-56.

digital asset platforms she was assigned to examine, "[t]here is no indication that trades on the [digital asset platform] become final and binding in the United States."[157]

99. In her analysis, Professor Yadav takes an extremely narrow view of where *offers* for the sale of a digital asset are made – one of the central questions she was asked to address – by focusing only on where trade *orders* are executed. Professor Yadav ignores the entire process whereby a digital asset is offered for sale, including the location of the entity or individual that offered the digital asset for sale, the location where promotional activity related to the sale of the digital asset occurred, and the location of the trader who placed the order.

4.4. Overview of Methodology Used for this Rebuttal

100. The methodology used in this Rebuttal is as follows: First, I examine the entire offering process whereby Ripple offered XRP for sale on digital asset platforms, including the location of entities, individuals and actions involved in that offering process. Second, I examine Professor Yadav's contention that she cannot "conclusively determine" that "any trade" on U.S.-Classified Platforms "became final in the U.S."[158] Third, I consider a key factor in determining the location of a digital asset trade mentioned, but not assessed by Professor Yadav, which is the location of a digital asset platform's servers. Fourth, I examine the process whereby Ripple offered XRP for sale on the on-ledger trading platform on the XRP Ledger and I assess the location where those XRP sales were made. Lastly, I review Ripple's offers to sell XRP through OTC transactions, again giving consideration to the location where those sales were made.

[157] id at 54.
[158] Expert Report of Yesha Yadav, October 4, 2021 at 69.

4.5. Main Findings

4.5.1. The Offering Process Involved Ripple, a U.S. Company, that Promoted XRP to U.S. Purchasers and Directed them to Purchase XRP on Both U.S.-Classified and Foreign-Classified Digital Asset Trading Platforms

101. Professor Yadav takes an extremely narrow view of the process whereby "offers to buy and sell cryptocurrencies like XRP, trading on an exchange, take[s] place."[159] In the case of Ripple's programmatic sales of XRP, however, Ripple's offering of XRP includes far more than the consummation of a digital sale on a digital asset platform. As shown below, Ripple's offering of XRP involved entities and individuals located in the U.S., and much of the offering process involved actions from within the U.S.

4.5.1.1. Ripple is a U.S. Company

102. Ripple has been a U.S. company since its inception. The company's first registration was with the Secretary of State in California when it filed its Articles of Incorporation in September 2012 under the name NewCoin, Inc.[160] In October 2012, the company changed its name to OpenCoin Inc., filing its Certificate of Amendment to its Articles of Incorporation again to the Secretary of State in California.[161] The following year, in October 2013, the company again changed its name, this time to Ripple Labs Inc., and again filed with the California Secretary of State.[162] Finally in August 2014, Ripple's Board of Directors approved its reincorporation as a Delaware corporation, and the new entity was recognized by the Delaware Secretary of State.[163]

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[159] Expert Report of Yesha Yadav, October 4, 2021 at 39.
[160] Newcoin Articles of Incorporation (2012). https://businesssearch.sos.ca.gov/Document/RetrievePDF?Id=03505635-15448921.
[161] Amendment to Articles of Incorporation of Newcoin, Inc. (2012). https://businesssearch.sos.ca.gov/Document/RetrievePDF?Id=03505635-15500880.
[162] Amendment to Articles of Incorporation of Opencoin, Inc. (2013). https://businesssearch.sos.ca.gov/Document/RetrievePDF?Id=03505635-16985455.
[163] Certificate of Ownership and Merger (2014). https://businesssearch.sos.ca.gov/Document/RetrievePDF?Id=03505635-18231036.

103. Ripple registered other U.S.-based entities to conduct its business operations. For example, its agreements with the market makers who programmatically sold XRP on digital asset platforms on its behalf were signed by Ripple Markets Inc., which was registered both as a California and a Delaware corporation.[164,165,166]

4.5.1.2. Ripple Promoted XRP in the U.S.

104. Ripple promoted XRP sales to investors worldwide, including in the United States. As discussed in my original expert report submitted on October 4, 2021, multiple Ripple executives, including CEO Brad Garlinghouse, Head of XRP Markets Miguel Vias, and VP of Global Institutional Markets Breanne Madigan, spoke at U.S. events targeting investors interested in digital assets. Garlinghouse was a featured speaker at the Yahoo Finance All Markets Summit: Crypto, which was introduced as an event for "discuss[ing] crypto investing with CEOs," held on February 7, 2018 in New York City.[167] As shown in Figure 10, Vias was a panel speaker at the 2017 CoinDesk Consensus: Invest conference, advertised as "the world's first digital asset investor outlook event," on November 28, 2017, also held in New York City.[168] And Madigan was a panel speaker on the investment topic, "Weighting Crypto in a Portfolio," at the Barron's Cryptocurrency Investors Forum held on December 3, 2020. The Barron's event was virtual, but it similarly had a strong U.S. nexus since it was hosted by Barron's, a U.S. media company providing financial news to investors; sponsored by Grayscale, a U.S. asset

[164] Ripple Markets Inc. Market Maker and Programmatic Market Activity Agreement (2017). [redacted] 006551-006554.
[165] Ripple Markets Inc. Programmatic Market Activity Agreement (2017). (GSR00017429)
[166] Ripple Markets Inc. Amendment to Programmatic Market Activity Agreement (2017). (GSR00018580).
[167] Yahoo Finance. Yahoo Finance All Markets Summit: Crypto (2018). https://www.yahoo.com/news/yahoo-finance-markets-summit-crypto-february-7-2018-223531903.html.
[168] Bizzabo. Consensus: Invest (2017). https://events.bizzabo.com/consensusinvest.

management firm specializing in digital assets; and featured speakers who all worked for U.S. companies at the time of the conference.[169]

Figure 10. Ripple Head of Markets Miguel Vias Speaking at the Consensus: Invest Conference in New York City[170]

105. At each of the events mentioned above, the Ripple executives touted the strengths of Ripple and XRP to U.S. investors. For example, when asked by the moderator to share "a few tokens or crypto assets…that have some really interesting tech behind them," Vias' answer included a strong pitch for Ripple and XRP:

> *I could never own anything but XRP…if we're going to talk about a coin that has actual traction and has a company behind it, that's well funded and is really sort of starting to get that escape velocity, good luck finding something better than XRP.*[171]

[169] Barrons. The Cryptocurrency Investor Forum. https://barronscustomevents.com/grayscale.
[170] YouTube. Trade Desk: Advancing the Asset (2017). https://youtu.be/jdFuiRVNUoM?t=2606.
[171] YouTube. Trade Desk: Advancing the Asset (2017). https://youtu.be/jdFuiRVNUoM?t=2587.

106. In addition Ripple CEO Brad Garlinghouse has also made regular appearances on U.S. media that provide financial and investment news. From 2017 to 2020, Garlinghouse has been interviewed by CNBC at least seven times,[172] Bloomberg at least nine times,[173] and Fox Business at least four times.[174] On multiple occasions, Garlinghouse made the case to investors using these U.S. media platforms as to why XRP would be an attractive investment. For example, on September 11, 2017, Garlinghouse was interviewed by CNBC and asked, "Many investors are trying to determine how to properly value cryptocurrencies. What do you think is the right way to value a cryptocurrency?" In his reply, Garlinghouse answered:

> *People are looking at the success Ripple has been having as a company, and I think that's increased the value of XRP. We want to keep focusing on making XRP a valuable payments tool, and that value will increase accordingly.*[175]

In an interview with Bloomberg TV on September 15, 2017, Garlinghouse similarly made the case for XRP because of how it solves "real-world problems":

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[172] CNBC. Interviews with Brad Garlinghouse. https://www.cnbc.com/2017/09/11/ripple-ceo-brad-garlinghouse-on-bitcoin-and-xrp.html; https://www.cnbc.com/2017/11/17/many-icos-are-fraud-according-to-ethereum-co-founder-and-ripple-ceo.html; https://www.cnbc.com/video/2017/12/27/full-interview-with-brad-garlinghouse.html; https://www.cnbc.com/video/2018/03/07/ripple-ceo-brad-garlinghouse-on-fast-money.html https://www.cnbc.com/2018/05/30/bitcoins-influence-over-cryptocurrency-prices-could-end-soon-says-ripple-ceo.html; https://www.cnbc.com/video/2018/06/04/ripple-ceo-expect-dozens-of-banks-to-use-our-cryptocurrency-next-year.html; https://www.cnbc.com/video/2019/07/18/ripple-ceo-on-libra-perhaps-some-silicon-valley-arrogance-with-cryptocurrency-rollout.html.

[173] Bloomberg. Interviews with Brad Garlinghouse. https://www.bloomberg.com/news/videos/2017-01-27/will-tech-titans-enter-payment-industry?sref=FBNDzWSI; https://www.bloomberg.com/news/videos/2017-07-27/ripple-ceo-regulation-may-be-good-for-crypto-coins-video; https://www.bloomberg.com/news/videos/2017-09-15/ripple-ceo-garlinghouse-sees-real-value-in-bitcoin-video; https://www.bloomberg.com/news/videos/2017-12-27/ripple-s-big-bet-on-blockchain-technology-video?sref=FBNDzWSI; https://www.bloomberg.com/news/videos/2018-02-13/ripple-ceo-favors-more-regulation-of-the-crypto-market-video?sref=FBNDzWSI; https://www.bloomberg.com/news/videos/2019-06-17/moneygram-partnership-is-a-big-step-for-blockchain-ripple-ceo-says-video?sref=FBNDzWSI; https://www.bloomberg.com/news/videos/2019-07-23/libra-s-effect-on-the-crypto-world-video; https://www.bloomberg.com/news/videos/2020-04-21/covid-scammers-are-taking-advantage-of-big-tech-platforms-says-ripple-ceo-video; https://www.bloomberg.com/news/videos/2020-11-19/ripple-ceo-concerned-china-will-win-crypto-video.

[174] Fox Business. Interviews with Brad Garlinghouse. https://www.foxbusiness.com/markets/ripple-ceo-overnight-price-drop-part-of-early-stage-volatility; http://video.foxbusiness.com/v/6093251471001/; http://video.foxbusiness.com/v/6097036189001/; http://video.foxbusiness.com/v/6200546415001/.

[175] CNBC. Ripple CEO Brad Garlinghouse on Bitcoin and XRP. https://www.cnbc.com/2017/09/11/ripple-ceo-brad-garlinghouse-on-bitcoin-and-xrp.html.

> *I think the extent you're solving a real-world problem there's real value in those tokens…when Ripple uses XRP, we're solving a payments problem. I believe that the more utility you draw, the more demand you're going to drive, and for most of these digital assets you have fixed supply. If you have fixed supply and increasing demand, right, it's going to drive price up.*[176]

Garlinghouse also appeared on Fox Business News, as seen in Figure 11, to discuss XRP's historic growth and the role of Ripple behind it:

> *I think the performance of XRP is really just a reflection of the problem it's solving. It's solving a real problem at scale and so the value that's been created, I think, is all about solving that real problem solving at scale…For Ripple that's using XRP to solve a global payments problem.*[177]

Figure 11. Garlinghouse Interview on Fox Business News[178]

[176] Bloomberg. Ripple CEO Garlinghouse Sees Real Value in Bitcoin (2017). https://youtu.be/akLQEacOT3w?t=91.
[177] Fox Business. Ripple CEO: Overnight price drop part of early-stage volatility (2018). https://www.foxbusiness.com/markets/ripple-ceo-overnight-price-drop-part-of-early-stage-volatility.
[178] ibid.

4.5.1.3. Ripple Directed Buyers in the U.S. to Purchase XRP at U.S.-Classified and Foreign-Classified Digital Asset Platforms

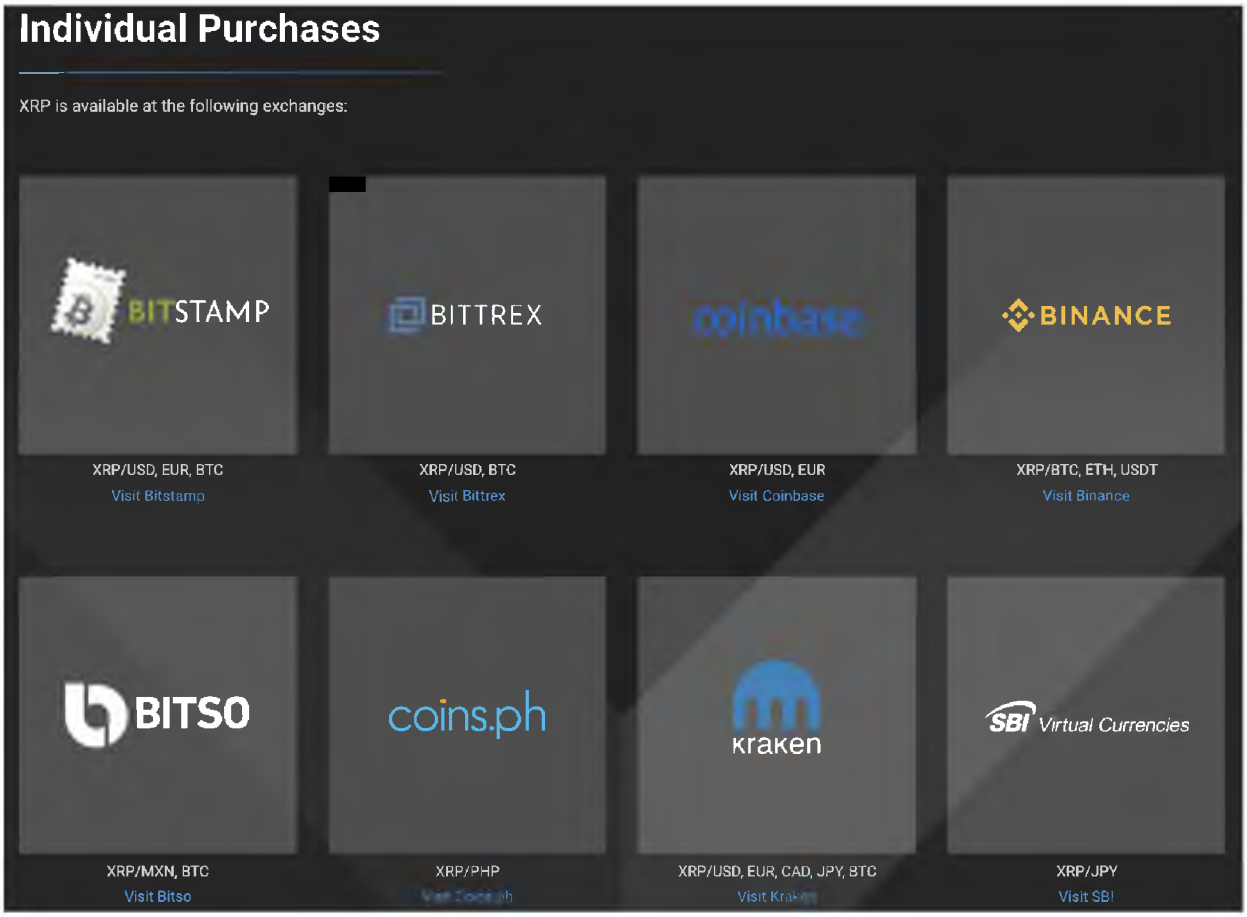
107. In this Section, I demonstrate that as part of its offering of XRP for sale, Ripple made efforts, aimed at persons including those in the U.S., to direct prospective purchasers of XRP to purchase XRP at digital asset platforms, including U.S.-Classified and Foreign-Classified Platforms. Ripple directed potential purchasers of XRP to its "Buy XRP" page which provided a list of Foreign-Classified and U.S. Classified Platforms where they could purchase XRP. This "Buy XRP" page, hosted at *ripple.com/xrp/buy-xrp/,* was promoted by Ripple through a variety of marketing and customer support channels including search engine optimization ("SEO"), responses to inbound requests for information on how to buy XRP, Ripple's blog, and Twitter.

108. On Ripple's "Buy XRP" webpage, which was hosted on a U.S. server for the entire Issuance Period,[179] interested buyers were provided the links to U.S.-Classified and Foreign-Classified Platforms, and were shown the different fiat currency/digital asset pairs available at each platform, as seen in Figure 12. For example, a prospective purchaser seeking to use U.S. Dollars to purchase XRP would be directed by Ripple to the U.S.-Classified Platforms Bittrex, Coinbase, and Kraken as well as the Foreign-Classified Platform Bitstamp, among other platforms.[180] From 2017 to 2020, there were multiple versions of the "XRP Buying Guide" page, but the platform that was always in the first position (i.e., the top left) among recommended platforms is Bitstamp. In this manner, Ripple prioritized sending prospective XRP purchasers, including those in the U.S. (discussed below), to Bitstamp which is among the top three Foreign-

[179] The ripple.com domain has been hosted on a server based in the U.S. for the entire Issuance Period: ViewDNS. View DNS info for Ripple.com. https://viewdns.info/iphistory/?domain=ripple.com.
[180] There are other digital asset platforms with XRP/USD trading pairs that are not shown in the excerpt in Figure 12: Ripple. XRP Buying Guide (Archived March 13, 2020). https://web.archive.org/web/20200313123712/https://ripple.com/xrp/buy-xrp/.

Classified Platforms with the most programmatic sales of XRP by Ripple.[181] This is important to note because Bitstamp – Ripple's top-recommended Digital Asset Platform – allowed U.S. investors to use its platform to purchase XRP during the Issuance Period and only halted trading of XRP by its U.S. customers on January 8, 2021.[182]

Figure 12. Excerpt from "Buy XRP" Page on March 13, 2020.[183]



109. Ripple directed purchasers in the U.S. to the "Buy XRP" page using a variety of channels. First, it used an SEO campaign, which is a strategy to increase the search engine

[181] Refer to discussion of this in the next Section 4.5.1.4.
[182] Bitstamp. XRP trading and deposits to be halted for US customers (2020). https://blog.bitstamp.net/post/xrp-trading-and-deposits-be-halted-us-customers.
[183] Ripple. XRP Buying Guide (Archived March 13, 2020). https://web.archive.org/web/20200313123712/https://ripdple.com/xrp/buy-xrp/.

ranking for web pages that are returned as responses when a user inputs a search for a specific set of key words. Details of Ripple's SEO campaign can be seen in the "SEO Tracking" tab in Ripple's "2018 Master Editorial Calendar" spreadsheet, which contains information regarding Ripple's marketing campaigns across multiple platforms, including its blog and social media account. An excerpt from the "SEO Tracking" tab is provided in Figure 13.

Figure 13. Excerpt from the "SEO Tracking" Tab in Ripple's "2018 Master Editorial Calendar"[184]

Rankings by Engine Variant Report for ripple				
				GOOGLE DESKTOP SEARCH RANKINGS
Keyword	Google en-US Rank	Google en-US Change (vs previous date)	Google en-US SERP Date	Google en-US URL
how do you buy ripple	2	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
how buy ripple	2	-1	2018-02-12	https://ripple.com/xrp/buy-xrp/
how to buy ripple cryptocurrency	1	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
kraken xrp	1	0	2018-02-12	https://ripple.com/xrp/how-to-buy-xrp-on-kraken/
ripples	1	0	2018-02-12	https://ripple.com/
ripple.com	1	0	2018-02-12	https://ripple.com/
what is xrp	3	0	2018-02-12	https://ripple.com/xrp/
how to buy ripple with usd	1	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
swell by ripple	1	0	2018-02-12	https://ripple.com/insights/news/announcing-swell-
ripple	1	0	2018-02-12	https://ripple.com/
ripple chart	1	0	2018-02-12	https://xrpcharts.ripple.com/
buy ripple xrp	1	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
how to buy ripple	2	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
where to buy ripple	1	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
ripple xrp chart	1	0	2018-02-12	https://xrpcharts.ripple.com/
ripple careers	1	0	2018-02-12	https://ripple.com/company/careers/
ripple address lookup	2	0	2018-02-12	https://xrpcharts.ripple.com/#/graph/
how to buy xrp	1	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
xrp trading	1	0	2018-02-12	https://xrpcharts.ripple.com/
ripple buy	1	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
digital currency	not in top 50		2018-02-12	
ripple account	1	0	2018-02-12	https://ripple.com/build/accounts/
ripple crypto	2	0	2018-02-12	https://ripple.com/
xrp purchase	1	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
how to buy ripple in usa	3	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
ripple transactions per second	1	0	2018-02-12	https://ripple.com/xrp/
where to buy xrp	1	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
kraken ripple	1	0	2018-02-12	https://ripple.com/xrp/how-to-buy-xrp-on-kraken/
ripple escrow	1	0	2018-02-12	https://ripple.com/insights/ripple-escrows-55-billion-
the real deal with digital assets	1	0	2018-02-12	https://ripple.com/insights/live-swell-real-deal-digital-
buying ripple	2	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
buy xrp	1	0	2018-02-12	https://ripple.com/xrp/buy-xrp/
ripple swell project	1	0	2018-02-12	https://ripple.com/insights/news/announcing-swell-
ripple labs news	1	0	2018-02-12	https://ripple.com/category/insights/news/

[184] Ripple. 2018 Master Editorial Calendar (2018). (RPLI_SEC 1035944).

110. The way to understand Ripple's SEO campaign in Figure 13 is to start with the search terms that Ripple prioritized for SEO, as seen in the leftmost column, e.g., "buy xrp". Next, for a given search term, Ripple arranged to have a specific page at *ripple.com* (seen in the rightmost column) to rank highly on search engines for that term, e.g., Ripple sought to have its "Buy XRP" page (*https://ripple.com/buy-xrp*) rank highly for the search term "buy xrp" as well as for the search term "buying ripple". Next, Ripple tracked the search engine ranking (seen in the second column from the left) of a given page for a given set of keywords, e.g., the "Buy XRP" page at *https://ripple.com/buy-xrp* ranked "1" on Google's U.S. search engine. The goal for SEO is to have the desired page rank as highly as possible, which is why the third column from the left tracks the change in search engine ranking from the previous period. Figure 13 demonstrates that Ripple's SEO goal was to direct search traffic for certain keywords, and by extension the individuals searching with those keywords, to specific pages on *ripple.com*, its U.S.-hosted website. Ripple also sought to direct foreign visitors to its "Buy XRP" page through "SEO/SEM", where "SEM" refers to search engine marketing which is the process of paying for targeted ads on search engines such as Google.[185]

111. Figure 13 demonstrates how Ripple directed prospective U.S. purchasers to the "Buy XRP" page. First, many of the keyword groups selected by Ripple for SEO directly involve buying XRP, such as "how to buy xrp" and "how do you buy ripple." Second, the spreadsheet demonstrates that Ripple's SEO strategy focused on the ranking of its pages for searches originating from predominantly U.S. residents. The "SEO Tracking" tab only lists the ranking of its pages for searches made from browsers set to U.S. English – "Google en-US Rank," "Google

[185] Email discussions involving [redacted] Ripple Product Marketing Team, November 29, 2019 - November 30, 2019. (RPLI_SEC 0371815-0371816).

Mobile en-US Rank," and "Bing en-US Rank"[186] – and not for searches from browsers set to other regions or languages, e.g., en-UK (UK English), ko-KR (Korean) or ja-JP (Japanese).[187] This means that Ripple arranged to have its "Buy XRP" page rank at the top of searches by browsers set to U.S. English, which would have included U.S. residents seeking information on how to buy XRP. As such, Ripple directed prospective purchasers of XRP, including those in the U.S. to its "Buy XRP" page, which prominently listed digital asset platforms, including Foreign-Classified Platform Bitstamp, as venues where they could buy XRP with U.S. Dollars.

112. Ripple's directing of U.S. residents to its "Buy XRP" page can also be seen by the inclusion of the search terms "how to buy ripple in ***usa*** [emphasis added]" and "how to buy ripple with ***usd*** [emphasis added]" among the keyword phrases tracked by its SEO campaign. Figure 13, shows that Ripple tried to have its "Buy XRP" page (*https://ripple.com/xrp/buy-xrp/*) to rank highly for these U.S.-related search terms.

113. Through email, Ripple also directed potential buyers to its "Buy XRP" page. When interested parties emailed xrpcontact@ripple.com, Ripple's auto-reply featured a link at the top of the email that directed them to the "Buy XRP" page.[188] In at least one instance, Ripple sought to direct a prospective U.S. purchaser to an earlier version of the "Buy XRP" page at

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[186] ibid.

[187] List of region/language abbreviations can be found at: Google Analytics. List of Region/Language Abbreviations. https://www.google.com/analytics/terms/. A description of how websites can learn about the language of a visitor's browser can be found at: SearchEngineWatch. (2013). https://www.searchenginewatch.com/2013/05/21/google-analytics-language-report-what-you-can-learn-about-your-visitors/.

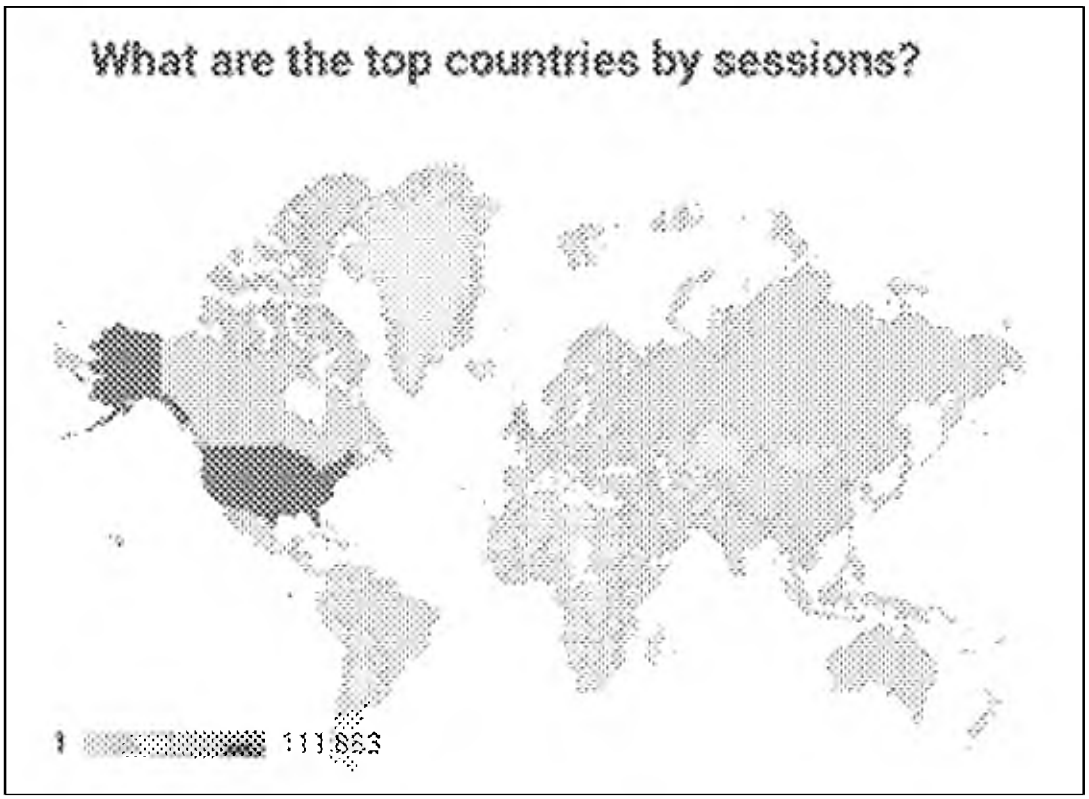
[188] Email from [redacted] January 5, 2018. (RPLI_SEC 0203417); this document shows the "Auto-Reply when people contact XRPContact@ripple.com," where, at the top of the email reply, "individual purchasers" or XRP are directed to http://go.pardot.com/e/105572/xrp-buy-xrp/2f7ffg/152621794/ which redirected to https://ripple.com/xrp/buy-xrp on October 21, 2021.

ripple.com/xrp-portal/how-to-buy-xrp, which also provided instructions on how to buy XRP on the Foreign-Classified Platform Bitstamp, among other platforms.[189,190]

114. Ripple's blog, available to U.S. visitors and hosted in the U.S. at *ripple.com*, also directed prospective purchasers to the "XRP Buying Guide" page. For example, in a blog post in December 2017 titled "How XRP Stacks Up Against Other Digital Assets," Ripple provides a comparison between XRP and other digital assets such as Bitcoin.[191] At the end of the post Ripple provides a link to "buy XRP" which redirects visitors to the "XRP Buying Guide" page.[192] In my opinion, it is highly likely that U.S. visitors engaged with this page because visitors from the U.S. comprised the largest audience for Ripple's website, as seen in Figure 14, which shows that in May 2019 the country with the highest number of "sessions" or visits[193] to *ripple.com* was the U.S., with 111,883. This is shown in the figure where the U.S. is the darkest shaded country and the bottom left corner provides a legend showing how the shading corresponds to the number of "sessions."

[189] Email from [redacted], October 2, 2016. (RPLI_SEC 0050302). In an email conversation in October 2016, Ripple employee [redacted] forwards an email from Nina F asking, "I was wondering, can we buy ripple in public in USA now?" to Ripple Employee [redacted]. Mr. [redacted] asks Mr. [redacted] "how should we respond to these"? In reply, Mr. [redacted] writes, "I would direct them to the 'How to Buy XRP' page" and includes the link to *ripple.com/xrp-portal/how-to-buy-xrp*.
[190] Slack messages between Ripple employees, April 10, 2017. (RPLI_SEC 0302585).
[191] Ripple. How XRP Stacks Up Against Other Digital Assets (2017). https://ripple.com/xrp/xrp-stacks-digital-assets/
[192] ibid.
[193] Google Support. How a web session is defined in Universal Analytics. https://support.google.com/analytics/answer/2731565?hl=en#zippy=%2Cin-this-article.

Figure 14. May 2019 Web Traffic Overview[194]

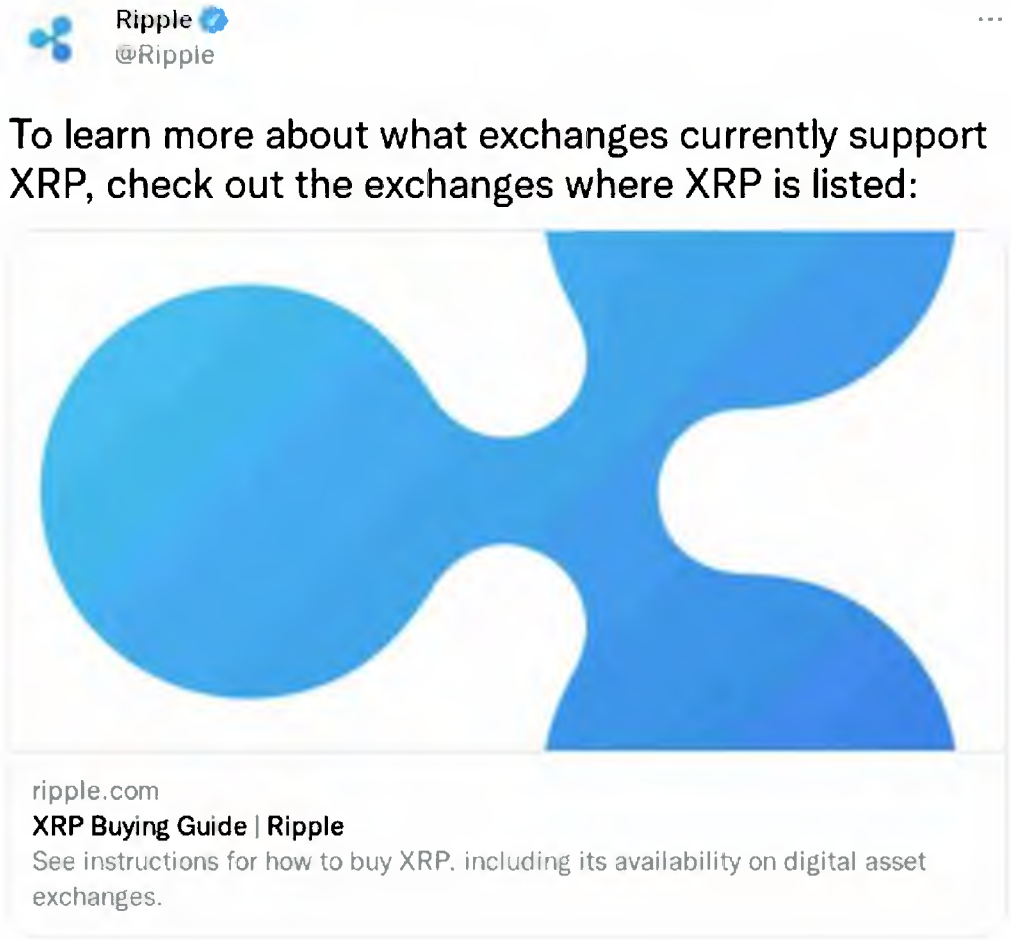


115. Ripple also used its Twitter account to direct potential purchasers to its "XRP Buying Guide" page, as seen in Figure 15. At least some U.S. residents appear to have viewed the tweet in Figure 15 because it was retweeted by Twitter accounts that listed locations in the U.S. as their geographic location.[195]

116. As demonstrated above, Professor Yadav's narrow focus regarding the offering of a digital asset for sale did not account for any of Ripple's actions in the U.S. to target prospective purchasers, including those in the U.S.

[194] Ripple. Web, Social & Digital Reporting Overview (2019). (RPLI_SEC 0733274).
[195] Twitter: Ripple (@Ripple, 2017). https://twitter.com/Ripple/status/876107173784190976/retweets.

Figure 15. Ripple Tweet Directing Potential Purchasers to "XRP Buying Guide" Page[196]



4.5.1.4. Programmatic Sales of XRP on U.S.- and Foreign-Classified Platforms

117. Ripple's offering of XRP for sale included engaging the services of three market makers, GSR Holdings Limited ("GSR"), [redacted], and [redacted] to programmatically sell XRP on its behalf at digital asset platforms.[197] From November 2014 to September 2019, [redacted], and GSR accounted for [redacted]% and [redacted]% of Ripple's programmatic sales of XRP

[196] Twitter: Ripple (@Ripple, 2017). https://twitter.com/Ripple/status/876107173784190976.
[197] XRP Programmatic Sales Reporting FY14 to Date v2 (RPLI_SEC 74559).

respectively, measured in U.S. Dollars.[198] Excluding sales by [redacted][199] between 2018 and 2019, the top three U.S.-Classified Platforms by volume of XRP sold were Kraken, Poloniex, and Bittrex, and the top three Foreign-Classified Platforms by volume of XRP sold were Bitstamp, Bithumb, and Binance.[200]

118. While Ripple, through its market makers, sold XRP on Foreign-Classified Platforms, the location where an order was made was not restricted to merely the locations of those Foreign-Classified Platforms as Professor Yadav contends. Indeed, U.S. residents and entities were able to and did place trade orders – from the U.S. – on Foreign-Classified Platforms.

119. All three of the top Foreign-Classified Platforms allowed U.S. purchasers to buy digital assets on their platforms during the Issuance Period. Bitstamp allowed U.S. investors to use its platform throughout the Issuance Period[201] and allowed U.S. customers to trade XRP up until January 8, 2021.[202] Binance initially allowed U.S. customers to use its platform without restriction, then later announced that U.S. customers would not be allowed to sign up for its platform after September 12, 2019.[203] However, Binance only began blocking visitors from U.S.-

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[198] ibid.
[199] Comprehensive programmatic XRP selling data for [redacted] was not available at the time of this Report's writing.
[200] GSR liquidity extraction reports prior to 2018 did not specifically list the digital asset platforms where XRP was sold, so the analysis was limited to 2018 and 2019 (GSR and [redacted] Liquidity Extraction Reports. (GSR00000102, GSR00000103, and SEC-[redacted]-E-0047622)).
[201] Bitstamp. Bitstamp About Us. https://www.bitstamp.net/about-us/.
[202] Bitstamp. XRP trading and deposits to be halted for US customers (2020). https://blog.bitstamp.net/post/xrp-trading-and-deposits-be-halted-us-customers.
[203] Binance announced the launch of Binance US on June 13, 2019 (Binance. Launch of Binance.US (2019). https://www.binance.com/en/blog/346119082624540672/Binance-Announces-Partnership-with-BAM-to-Launch-US-Exchange) and the following day on June 14, 2019 announced that U.S. customers would no longer be allowed to use its platform beginning September 12, 2019 (Tech Crunch. Binance Begins to Restrict US Customers (2019). https://techcrunch.com/2019/06/14/binance-begins-to-restrict-us-customers/).

based I.P. addresses starting in November 2020.[204] Bithumb allowed U.S. citizens and residents to use its platform before at least January 16, 2021.[205]

120. In addition, it is clear that U.S. residents and entities did indeed trade XRP on Foreign-Classified Platforms. Both Larsen and Garlinghouse had trading accounts on Bitstamp, through which they traded XRP.[206] [redacted], one of Ripple's programmatic sellers based in New York City, traded XRP on at least Bitstamp and Bitfinex.[207]

4.5.1.5. Flow of XRP from Foreign-Classified Platforms to U.S.-Classified Platforms

121. Based on the documents I have reviewed and my expertise in the digital asset space, when Defendants offered XRP for sale on digital asset platforms, i) it does not appear that Ripple attempted to place restrictions regarding the offer for sale and subsequent resale of XRP to U.S. residents and ii) Ripple could not have prevented the subsequent resale of XRP to U.S. residents. According to her deposition testimony, [redacted], Ripple's former Head of Global Institutional Markets, is not aware of any restrictions Ripple may have imposed on two of its market markers, GSR and [redacted], to prevent them from selling XRP to any particular individuals.[208] Also, according to Ripple CEO Brad Garlinghouse, regarding GSR's sales of XRP on his behalf, he never instructed GSR not to sell to U.S. persons prior to August or

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[204] The Block. Binance has begun to block U.S. users from accessing its exchange platform (2020). https://www.theblockcrypto.com/post/84020/binance-blocking-us-users-exchange-email-2.
[205] Bithumb, Bithumb Terms of Service (Archived on December 19, 2020), https://web.archive.org/web/20191219103055/https://support.bithumb.pro/hc/en-us/articles/360021308933-Terms-of-Service; Bithumb, Bithumb Terms of Service (Archived on December 5, 2020), https://web.archive.org/web/20201205122237/https://support.bithumb.pro/hc/en-us/articles/360021308933-Terms-of-Service; Bithumb, Bithumb Terms of Service (Archived on October 11, 2021), https://web.archive.org/web/20210116151101/https://support.bithumb.pro/hc/en-us/articles/360021308933-Terms-of-Service.
[206] Bitstamp account and trading details (2020). (BITSTAMP USA_00000071, BITSTAMP USA_00000137, BITSTAMP USA_00000001, and BITSTAMP USA_00000044).
[207] Bitstamp. Bitstamp account and trading details (2020). (BITSTAMP USA_00002211, BITSTAMP USA_00002326). Bifinex. Bitfinex account details. (BFXNA_Ripple 0000105).
[208] Deposition of [redacted], May 18, 2021 at 52.

September 2020.[209] Indeed, in most cases Ripple could not have prevented XRP from being resold to U.S. purchasers because after a digital asset is generally purchased on digital asset platforms, the holder of that digital asset can transfer it on the blockchain to any other person with a blockchain address, regardless of location, as well as send it on the blockchain to other digital asset platforms (including U.S.-Classified Platforms) where it can be resold and purchased by a resident of a different country. GSR principal [redacted] also made this point when answering the question, "If you wanted – could you restrict the XRP you sold from being purchased by a U.S. person?"[210] He replied, "GSR? No…if we sell XRP to Joe Block on this exchange and Joe Block turns around and withdraws it and sells it to an American, I have no way of controlling that."[211]

122. Based on analysis of XRP Ledger data, I conclude that at least $5.7 billion worth of XRP has flowed from Foreign-Classified Platforms where Ripple sold XRP to U.S-Based Platforms where XRP could be purchased by U.S residents. As shown in Figure 16, from early 2017 to December 22, 2020, at least $5.7 billion was directly transferred, i.e., in one hop or transfer, from the Foreign-Classified Platforms to U.S.-Classified Platforms. This value is a lower bound of the actual flow for XRP from Foreign-Classified Platforms to U.S.-Classified Platforms because it does not include indirect transfers, i.e., flows of XRP from Foreign-Classified Platforms to U.S.-Classified Platforms over more than one hop on the XRP blockchain.[212]

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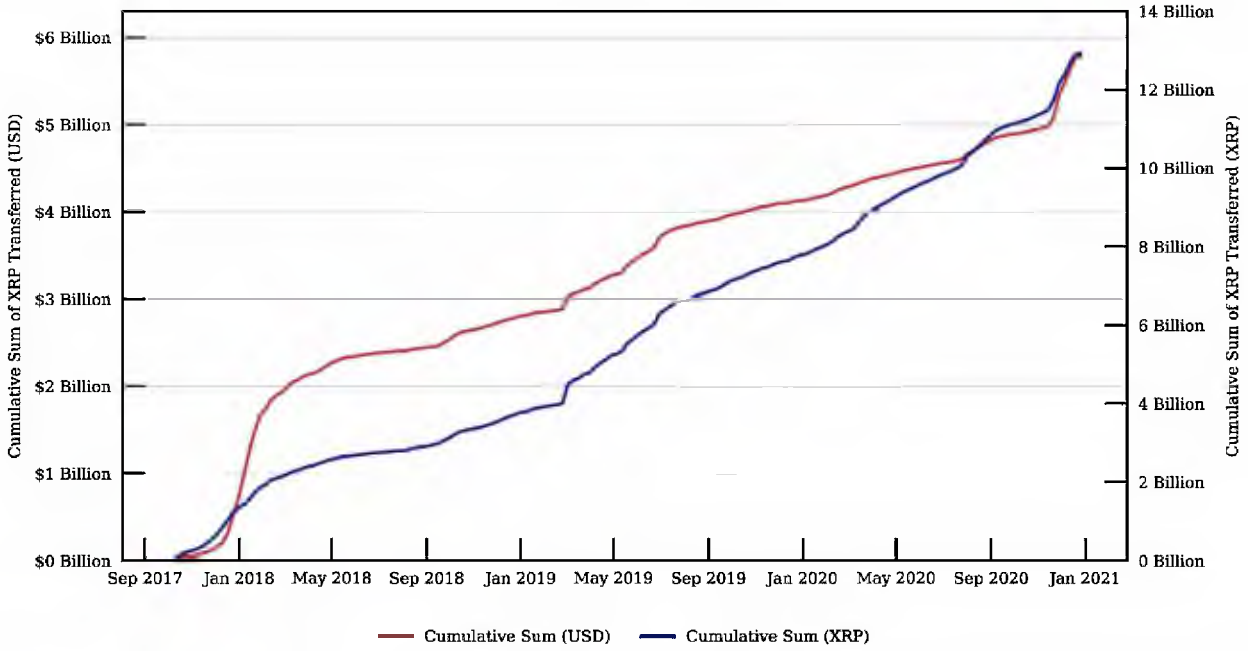
[209] Deposition of Brad Garlinghouse, September 20, 2021 at 487; Q: "Before [August or September 2020] had you ever instructed GSR not to sell to U.S. persons?"; A: "I don't believe so."
[210] Deposition of [redacted] August 11, 2021 at 156-157.
[211] ibid.
[212] Flows of XRP between such platforms over more than one hop would have involved the transfer of XRP over one or more intermediary addresses between the Foreign-Classified Platform and the U.S.-Classified Platform.

Figure 16. Cumulative Flow of XRP from Foreign Platforms where Ripple Programmatically Sold XRP to U.S.-Classified Platforms[213]

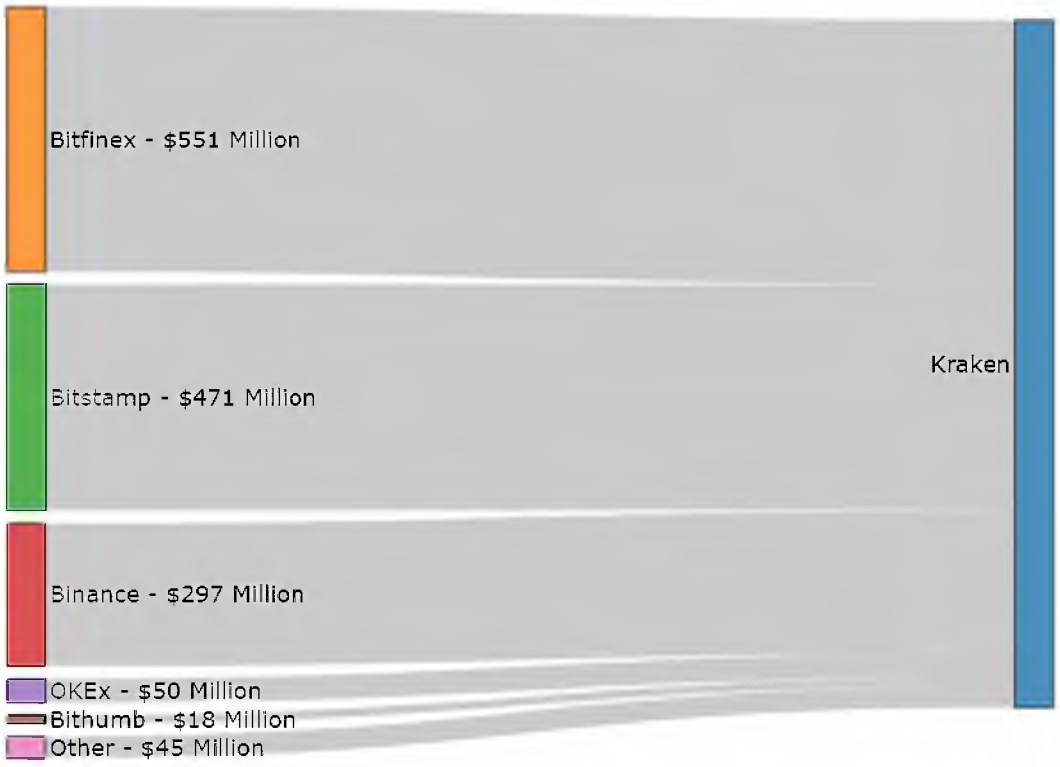


123. As seen in Figure 17, Kraken, one of the U.S. digital asset platforms where Ripple programmatically sold XRP, received over $1 billion worth of XRP from the Foreign-Classified Platforms where Ripple programmatically sold XRP. Kraken is a noteworthy example because Ripple made a concerted effort to enable purchasers to buy XRP on that platform. As part of an email detailing Ripple's "Q2 XRP Plan" in 2017, Ripple's Senior Vice President of Business Development [redacted] described having the goal to "drive XRP speculative trading volume," which involved "BD [business development] racing to get Kraken live for easier XRP

[213] Foreign platforms and US platforms where Ripple programmatically sold XRP were identified from GSR and [redacted] Liquidity Extraction Reports. (GSR00000102, GSR00000103, and SEC-[redacted]-E-0047622). Foreign platforms included in this analysis are: Binance, Bitstamp, Bitfinex, Bitrue, Coinone, Hitbtc, Upbit, Okex, Bitbank, Bithumb, Zb, Bitforex, Korbit, Bitmart, Coinbene, Bitlish, and Digifinex. U.S. platforms are Coinbase, Bittrex, Poloniex, and Kraken. Methodology for tracing the flow of XRP can be found in Appendix A.

buying."[214] This involved working with Kraken to get XRP listed[215] as well as providing incentive payments to Kraken.[216]

Figure 17. Value of Direct Transfers of XRP from Foreign Platforms where Ripple Programmatically Sold XRP to Kraken



4.5.1.6. Ripple Transferred Proceeds from its Offering of XRP for Sale on Digital Asset Platforms to Ripple's U.S. Bank Account, Which Funded Ripple's Operations, Including Those in the U.S.

124. As described in the preceding Sections, Ripple, a U.S. company, promoted XRP to U.S. purchasers, directed them to buy XRP on U.S. and Foreign-Classified Platforms, and did not prevent XRP programmatically sold on Foreign-Classified Platforms from being resold to U.S. purchasers. In the final step of Ripple's offering of XRP for sale, Ripple pooled the

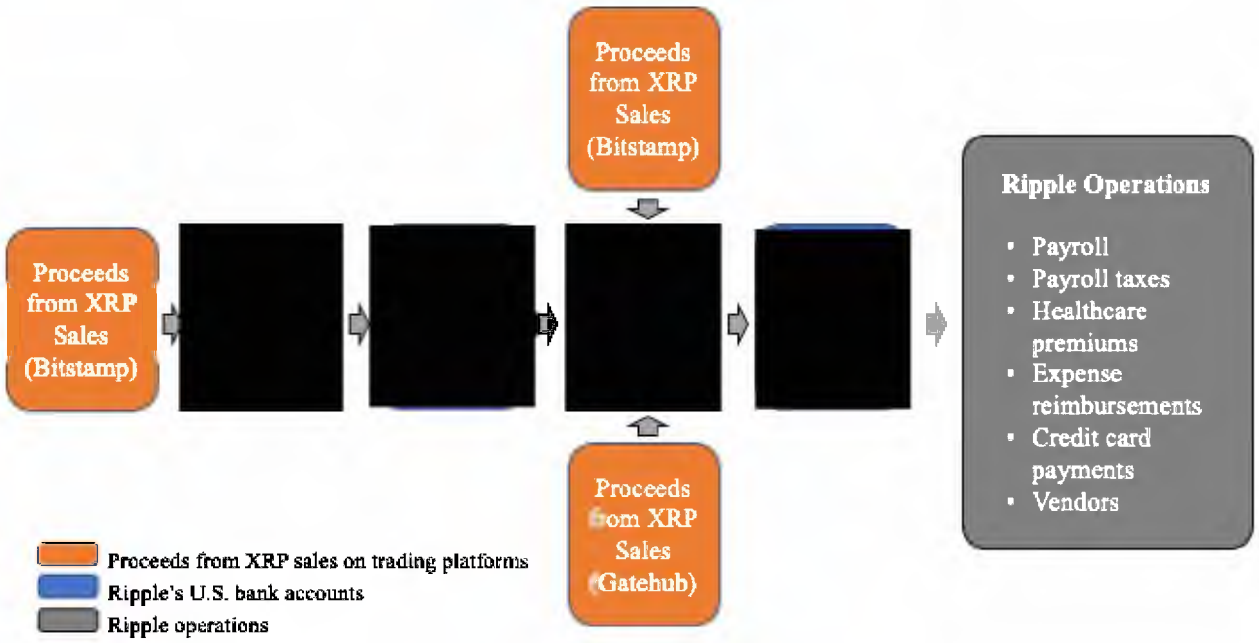
[214] Deposition of [redacted], June 29, 2021 at 272-275.
[215] ibid.
[216] Deposition of [redacted], June 28, 2021 at 93-94.

proceeds of sales of XRP from U.S. and Foreign-Classified Platforms into its U.S. bank accounts which were then used to fund its U.S. operations.

125. As illustrated in Figure 18, Ripple received funds from Bitstamp and Gatehub, two Foreign-Classified Platforms, to its U.S. bank account at [redacted] bank (account ******[redacted] and its U.S. bank account at [redacted] (account *****[redacted]). It is inferred that the transfers into those two bank accounts generally encompass the vast majority of Ripple's programmatic XRP sales on U.S. and Foreign-Classified Platforms because the value of funds transferred into those two accounts between July 2017 and October 2019 is within one percent of the value of Ripple's programmatic XRP sales on U.S. and Foreign-Classified Platforms between July 2017 and September 2019.[217] The proceeds of Ripple's XRP sales from digital asset platforms were then pooled and sent to Ripple's [redacted] Account ******[redacted]. This account serves to make payments to fund Ripple's operations, including those in the U.S. Examples of such payments include payroll through ADP, a U.S. payroll services company, Anthem Blue Cross, a U.S. health insurance provider, and expense reimbursements to employees based in the U.S.[218]

[217] XRP Programmatic Sales Reporting_FY14 to Date v2 (RPLI_SEC 74559); [redacted] transaction details (SEC-[redacted]-E-0000197); [redacted] transaction details (SEC_[redacted]-E-0005094).
[218] [redacted] transaction details. (SEC_[redacted]-E-0005025)

Figure 18. Pooling of Proceeds from XRP Sales to fund Ripple's Operations[219]



4.5.2. Professor Yadav's Assessment of U.S. Classified Platforms Is Inconsistent and Unreliable

126. Professor Yadav provides four indicia "to determine the location of exchanges on which offers were made and trades finalized,"[220] described in Section 4.3 above. Using these indicia, she determines that for the Foreign-Classified Platforms, "There is no indication that offers are made on the exchanges in the U.S., or that trades on these exchanges become final in the U.S."[221] In contrast, even though applying her test does indicate that trades on U.S.-Classified Platforms become final in the U.S., Professor Yadav nevertheless concludes that she cannot determine that those trades occur in the U.S.[222] As justification for her differential treatment of Foreign-Classified and U.S.-Classified Platforms, Professor Yadav first cites the

[219] Silvergate Bank transaction details (SEC-[redacted]-E-0000197); [redacted] transaction details. (SEC_[redacted]E-0005094, SEC[redacted]E-0005025, and SEC_[redacted]-E-0005095).
[220] Expert Report of Yesha Yadav, October 4, 2021 at 55-56.
[221] Expert Report of Yesha Yadav, October 4, 2021 at 54.
[222] Expert Report of Yesha Yadav, October 4, 2021 at 69.

example of Bittrex, a U.S. platform which also has a foreign affiliate, Bittrex Global, where a "market- maker might have" traded. A "market- maker" in the context of this case would include the three firms that programmatically sold XRP on behalf of Ripple on digital asset platforms: GSR, [redacted], and [redacted].[223] Second, Professor Yadav references terms of service of U.S.-Classified Exchanges which have different versions or separate stipulations for non-U.S. customers, e.g., Coinbase Singapore has a different terms of service for Singapore residents and Kraken has a separate stipulation for non-U.S. residents in its terms of service, and uses these as examples of why trades at the U.S.-Classified exchanges might not take place in the U.S.[224]

127. Notably, Professor Yadav only applies these exceptions to her U.S.-Classified Platforms. In other words, she is adding two new indicia – the existence of a subsidiary incorporated outside the parent company's country of incorporation and the existence of separate terms of service or separate stipulations for residents of a different country – to U.S. Classified-Platforms only. However, if she used the same standard for her Foreign-Classified Platforms, she would also have to conclude that her indicia do not "conclusively determine" that trades on Foreign-Classified Platforms "definitively took place and became final" outside of the U.S. Using Professor Yadav's logic, one could also just as easily question whether trades to sell XRP on Binance (a Foreign-Classified Platform) occurred not on Binance, but on Binance.US, its U.S. affiliate. Similarly, one could also question whether trades on Bitstamp (another Foreign-Classified Platform) actually took place overseas and not in the U.S. because Bitstamp has separate terms of service for U.S. residents.[225] However, she does not hesitate to conclude that

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[223] XRP Programmatic Sales Reporting FY14 to Date v2 (RPLI_SEC 74559). Professor Yadav seems to acknowledge that GSR is among those who received instructions from Ripple to sell XRP on digital asset platforms (Expert Report of Yesha Yadav, October 4, 2021 at 39).
[224] Expert Report of Yesha Yadav, October 4, 2021 at 69.
[225] Bitstamp. Terms of Use - Bitstamp USA, Inc. (2021). https://www.bitstamp.net/terms-of-use/inc/ and Bitstamp. Terms of Use - Bitstamp USA, Inc. (Archived on May 31, 2020). https://web.archive.org/web/20200531102017/https://www.bitstamp.net/terms-of-use/inc/.

there is no indication that trades on Foreign-Classified Platforms such as Binance and Bitstamp did not occur in the U.S., even though she has not provided any evidence demonstrating that Foreign-Classified Platforms such as Binance did not have a U.S. affiliate nor a separate terms of service for U.S. residents.

128. Laying aside the inconsistency of Professor Yadav's treatment of U.S.-Classified versus Foreign-Classified Platforms, she also ignores her own methodology and analyses through her treatment of Poloniex, one of the U.S.-Classified Platforms. Professor Yadav argues that Poloniex might not actually be based in the U.S. because, at GSR principal [redacted] deposition, he said it "might have been in one of th[o]se Caribbean Islands."[226] Here, Professor Yadav accepts a single individual's conjecture and permits it to displace the criteria she selected and endorsed for the determination of a digital asset trading platform's location. The following provides the context prior to Mr. [redacted] quotation that Professor Yadav cites:

> *Q [Defendants' attorney Ms. Dearborn]. And she [SEC attorney Ms. Waxman] asked specifically whether any of these were U.S.-based exchanges. Do you recall that?*
>
> *A. [Mr. [redacted]]: Yes, I do.*
>
> *Q. And one of the exchanges that you mentioned was Poloniex, right?*
>
> *A. Correct.*
>
> *Q. And you said that it was a U.S. exchange at one point. Do I have that right? I don't want to mischaracterize your testimony?*
>
> *A. Yes. I said that.*
>
> *Q. What do – what did you mean?*
>
> *A. Well, Poloniex was supposedly founded by a gentleman from somewhere in Upstate New York. And from dealing with the people in Poloniex over the years, I know their support staff was somewhere in the northeast too. So it seemed as though Poloniex was operating from the United States, but I don't know that I*

[226] Expert Report of Yesha Yadav, October 4, 2021 at 70.

> *ever saw the Article of Incorporation or I could confirm that in fact the company was based in the U.S.*
>
> *Q. Okay.*
>
> *A. It might have been in one of these Caribbean islands or -- yeah.*[227]

Professor Yadav reviewed documents related to Poloniex's organization and concluded that Poloniex's "Place of Incorporation/Domicile" was in the U.S. and that its "Principal Place of Business" was in the U.S.[228] Indeed, her Exhibits B25 and B26 both state that Poloniex has a principal office in Boston, Massachusetts and was "organized" and "formed in" Delaware.[229] Thus, in this instance Professor Yadav ignores her own methodology and instead relies on the speculation of an individual who acknowledged that he – unlike Professor Yadav – did not have the relevant information regarding the location where Poloniex was incorporated or organized.

129. Professor Yadav contends that her four indicia are insufficient to conclusively determine whether "any given offer or trade on any one of these four exchanges definitively took place and became final in the U.S." because such platforms might have foreign affiliates, including where "relevant market makers" could have traded.[230] But Professor Yadav does not appear to have taken any steps to determine where the "relevant market makers" in this case did trade.

130. The trading data that was available at the time of this Rebuttal report's writing definitively show that at least in one instance, one of Ripple's market makers programmatically selling XRP on its behalf did so on the U.S. platform, not the foreign platform of its affiliate.

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[227] Deposition of [redacted], August 11, 2021 at 302-303.
[228] Expert Report of Yesha Yadav, October 4, 2021 at 66.
[229] Exhibits B25 and B26 of Expert Report of Yesha Yadav, October 4, 2021.
[230] Expert Report of Yesha Yadav at 69.

Bittrex account and trading records show that GSR sold XRP on behalf of Ripple, Chris Larsen, and Brad Garlinghouse on Bittrex (U.S.) and not Bittrex Global.[231]

4.5.3. Professor Yadav Acknowledges that the Location of a Digital Asset Platform's Servers is a Relevant Indicia, Yet Chooses to Ignore it in Her Analysis

131. Professor Yadav uses four indicia to determine the geographic location of digital asset trading platforms (and, notably, then assumes the trading takes place at their purported location): place of incorporation, principal place of business, registered office address, and the locations referenced in their terms of service. These indicia omit the physical location of a platform's servers which Professor Yadav herself recognizes as an indicium for the location of a digital asset platform. For example, she provides the example of Bitstamp as an exchange with indicia pointing to different locations:

> *Bitstamp, for example, has its registered office in the United Kingdom but states that its location of 'principal financial functions and operational control' is in Slovenia. It also has servers in Ireland and Germany.* [232]

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[231] GSR had an account on Bittrex to programmatically sell XRP on behalf of Ripple, Chris Larsen, and Brad Garlinghouse, and the account was registered to the email address *gsr+rl@gsr.io* (Bittrex-NY-9875_0003411). Based on the deposit log for this account (Bittrex-NY-9875_0003410), it was funded by XRP deposits from GSR wallets that were involved with programmatic sales for Ripple, Chris Larsen, and Brad Garlinghouse. This can be determined because this Bittrex deposit log contains XRP deposit transaction IDs, referred to as "hashes" on the XRP blockchain, that are also found in GSR liquidity extraction reports for Ripple (GSR00000103), Chris Larsen (GSR00000441), and Brad Garlinghouse (GSR00000446). The trading log (Bittrex-NY-9875_0003413) for this Bittrex account, used by GSR to programmatically sell XRP on behalf of Defendants, sold XRP on Bittrex between July 6, 2018 and December 5, 2019. Since Bittrex' international operations only launched after October 29, 2018 (https://www.prnewswire.com/news-releases/bittrex-international-to-launch-trading-platform-300739320.html), it is possible to definitively conclude that GSR's sales of XRP prior to that date occurred on Bittrex' main U.S. platform. Furthermore, since Bittrex announced that its international platform was a separate platform from its U.S. platform, it is also possible to conclude that GSR continued to sell XRP on Bittrex' main U.S. platform after the launch of Bittrex' international platform since GSR's trades continued to be recorded in the same trading log (Bittrex-NY-9875_0003413) after the international platform was launched. Also, GSR funded this account by making deposits to the same Bittrex XRP Ledger address with the same destination tag, [redacted]6778 (as destination tag is akin to a checking account number and used by digital asset platforms to attribute digital asset deposits to the right account), before and after the launch of Bittrex' international platform. This further demonstrates that GSR programmatically sold XRP on Bittrex's main U.S. platform before and after the launch of Bittrex' international platform. Bates numbers correspond to documents as follows: Bittrex account and trading details (Bittrex-NY-9875_0003410, Bittrex-NY-9875_0003411, and Bittrex-NY-9875_0003413); GSR liquidity extraction reports for Ripple (GSR00000103), GSR liquidity extraction report for Chris Larsen (GSR00000441); and GSR liquidity extraction report for Brad Garlinghouse (GSR00000446).

[232] Expert Report of Yesha Yadav, October 4, 2021 at 55.

However, while the location of a digital asset platform's registered office and principal place of business are included among the four indicia used by Professor Yadav, the location of a platform's servers is noticeably excluded. Servers are an integral part of the execution of any trade on a digital asset platform because they provide price information to traders, accept trade orders, match trade requests, log executed trades, and convey trade records to buyers and sellers.

132. Professor Yadav's omission of the location of a digital asset platform's servers is material because some Foreign-Classified Platforms have servers located in the U.S. For example, Binance, a Foreign-Classified Platform, utilizes Amazon cloud servers in the U.S. where traders can get real-time price information and place trade orders using its API (application programming interface).[233,234,235] Bitstamp also has servers in the U.S., including during the Issuance Period[236,237] Based on my professional experience and expertise in trading digital assets, and given the significant interest in the U.S. in digital asset trading by retail traders as well as by sophisticated digital asset trading firms, in my opinion it is unsurprising that Binance, Bitstamp, or other Foreign-Classified Platforms would locate servers in the U.S. since the closer one is to an exchange's server, the faster one can obtain price information and place trade orders. By locating servers in the U.S., Binance and Bitstamp make themselves more attractive to certain traders who seek to gain a trading advantage by more quickly obtaining

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[233] An API enables traders to directly obtain price quotes and place trade orders using custom software. This is favored by high frequency traders who can automatically place trading orders using algorithms.
[234] Binance's main URL "binance.com" resolves to locations in Japan, but Binance's API "api.binance.com" resolves to Amazon servers in the U.S. according to IP Location, a server location provider (https://www.iplocation.net/ip-lookup).
[235] In March 2020, a trader based in Europe found that the latency for accessing Binance's (not Binance US) API is the shortest in Tokyo, Japan and New Jersey, which suggests that Binance could have two main servers for processing trades in those two locations: Github User Sammchardy. Binance Server Location (2018). https://github.com/sammchardy/python-binance/issues/189.
[236] "bitstamp.net" resolves to servers in the U.S. according to IP Location, a server location provider (https://www.iplocation.net/ip-lookup).
[237] ViewDNS. View DNS info for bitstamp.net. https://viewdns.info/iphistory/?domain=bitstamp.net.

pricing data and executing trades. Professor Yadav fails to determine or demonstrate where the servers for each of the digital asset trading platforms she reviewed are located.[238] Accordingly, she cannot (and does not) opine that every server belonging to a Foreign-Classified Platform is not located in the U.S., and thus cannot prove that all the trades involving Ripple's sales of XRP on digital asset platforms were not initiated, processed, finalized, or recorded in the U.S.

133. Conversely, indicia do exist which point to the presence of U.S. servers for some of the U.S.-Classified Platforms. According to Coinbase, "Coinbase Exchange data centers [which host its servers] are in the Amazon US East N. Virginia (us-east-1) region."[239] During at least part of the period when Ripple programmatically sold XRP on Poloniex, Poloniex's servers were located in Virginia.[240]

4.5.4. Ripple's Sales of XRP on the XRP Ledger were Executed by U.S.-Based Servers

134. Ripple's offering of XRP for sale took place not only on the digital asset platforms listed in the Yadav report, but also on the XRP Ledger. The XRP Ledger contains functionality that enables trade orders to be created, executed, and recorded on the blockchain.

135. Ripple employed the services of at least two market makers, GSR and [redacted] to sell XRP on the XRP Ledger.[241] Figure 19 illustrates the process whereby GSR

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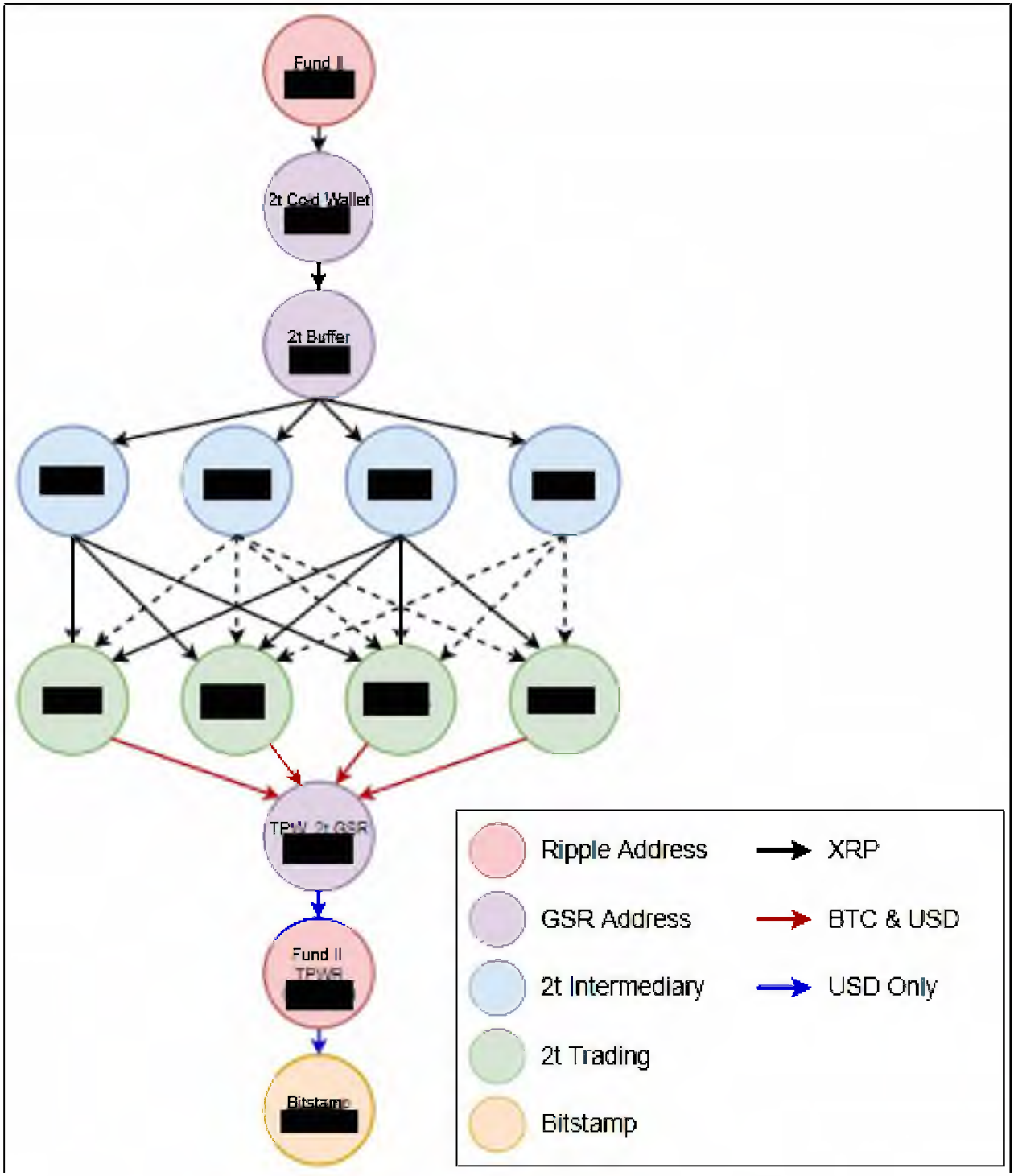
[238] Professor Yadav mentions that Bitstamp has servers in Ireland and Germany but does not provide any citation (Expert Report of Yesha Yadav, October 4, 2021 at 55).
[239] Coinbase. Coinbase Data Centers. https://docs.cloud.coinbase.com/exchange/docs/data-centers.
[240] According to the Wayback Machine, Poloniex's API instructions at https://docs.poloniex.com/ on June 15, 2019 and November 15, 2019, include: "If you will be performing high-frequency trading, you may wish to locate your bots as close to our servers as possible. As Poloniex uses Cloudflare for all requests, you can minimize network latency by positioning your client near the Cloudflare gateway in Ashburn, VA, United States." (Poloniex. Introduction (Archived on June 15, 2019). http://web.archive.org/web/20190615031247/https://docs.poloniex.com/#introduction and Poloniex. Introduction (Archived on November 15, 2019). http://web.archive.org/web/20191115040933/https://docs.poloniex.com/#deposit).
[241] GSR sales of XRP on behalf of Ripple on the XRP Ledger is discussed in this paragraph. [redacted] on-ledger XRP sales on behalf of Ripple can be seen at RL_audit2.0.xls. [redacted] XRP Sales Auditing Spreadsheet. ([redacted] 000277)

conducted these sales on behalf of Ripple for a snapshot in time from May 1 to July 1, 2016. First, Ripple disbursed XRP to GSR's "Cold Wallet." Then GSR transferred the XRP to its "Buffer Wallet" and subsequently to intermediary wallets that sold XRP on the XRP Ledger. The wallets shown in this analysis sold XRP in exchange for U.S. Dollars or Bitcoin (but they could have sold XRP for other assets as well), and transferred proceeds of sales back to GSR's "TPW_2t" wallet. Then, GSR's "TPW_2t" wallet would convert all proceeds into U.S. Dollars and profits from the proceeds would be pooled and sent to Ripple's "Fund II TPWR" wallet. Finally, Ripple would send the received proceeds to Bitstamp, where it could withdraw its earnings in cash.

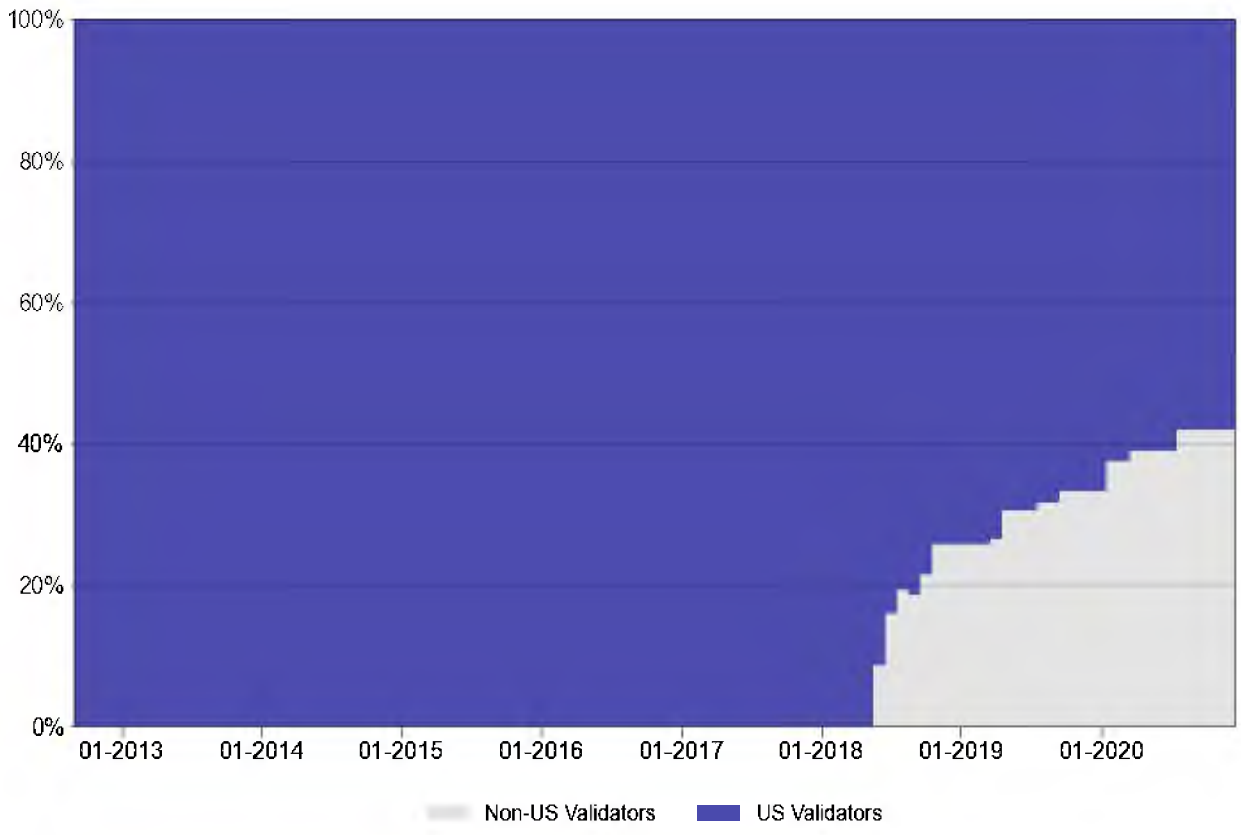
Figure 19. Process of Ripple's Programmatic Sales of XRP on the XRP Ledger[242]



[242] GSR liquidity extraction reports and publicly available blockchain data; refer to Appendix B for a detailed list of sources and the methodology for creating this figure.

136. Ripple's sales of XRP on the XRP Ledger were initiated, executed, and recorded on the validators running the XRP Ledger software and many of the organizations running these validators were located in the U.S. Figure 20 shows the location of the official domains validating and recording all the transactions on the XRP Ledger, including the trades where Ripple sold XRP. Up until June 2018, all the validators were based in the U.S. From June 2018 to December 22, 2020, the majority of XRP Ledger validators and those validators' servers have continued to be located in the U.S. As such, each of Ripple's sales of XRP on the XRP Ledger were executed and finalized by organizations and on servers based in the U.S.

Figure 20. Location of XRP Ledger Validators.[243]



[243] A detailed list of sources and methodology for this figure can be found in Appendix C.

4.5.5. Ripple's Sales of XRP to U.S. Institutional and High Net Worth Individual Purchasers through Over the Counter Sales

137. In addition to offering XRP for sale on digital asset platforms, Ripple offered XRP for sale via OTC sales to institutions and high net worth individuals. The sales were conducted by XRP II LLC, a U.S. limited liability company that was originally registered in South Carolina and later in New York where it was also registered with the New York Department of Financial Services.[244]

138. Ripple specifically targeted U.S.-based institutional and high net worth purchasers and its efforts were successful. Ripple's XRP Outreach Q3 Proposal lists several segments to target for outreach, including i) "US High Net Worth Individual Investors," ii) US Macro Hedge Funds, and iii) "US Asset Management."[245] U.S. entities purchasing XRP from XRP II LLC include [redacted][246] [redacted][247] and [redacted][248] Ripple also enlisted the help of U.S.-based OTC market makers, [redacted] and [redacted], which sold XRP over the counter to individuals and entities purchasing over $[redacted] and $[redacted] worth of XRP respectively, as seen in Figure 21.

[244] [redacted]. Summary of XRP Purchase (2016). ([redacted]_Ripple_0001481); [redacted] Master XRP Purchase Agreement (2018). (RPLI_SEC 0001010).
[245] Ripple. XRP Outreach Q3 Proposal (2017). (RPLI_SEC 0839297-0839302).
[246] [redacted] Master XRP Purchase Agreement (2017). ([redacted]_Ripple_0007120).
[247] [redacted]. Master XRP Purchase Agreement (2018). (RPLI_SEC 0173808-0173826).
[248] [redacted] Master XRP Purchase Agreement (2018). (SEC [redacted]_E_0001260).

Figure 21. Email Template for Institutional Buyers.[249]

**********OTC Template for Institutional Buyers:**

Hi,

Thank you for your email.

Given your interest in XRP, I would like to introduce you to an OTC market maker in your region. **We provide this information solely for your reference; Ripple does not endorse the OTC market maker below. As always, it is advisable to conduct your own due diligence.**

Please remember before signing up with an OTC market maker, you will need to have an XRP wallet ready. There are many wallets out there and although we do not support one directly, we have partnered with Bitgo.com for enterprise storage if you are expecting to store over $300,000 of digital assets.

US-based: https://[redacted]com/otc-trading/ **Minimum XRP purchase: $75k**
US-based: https://www.[redacted]com/en/ **Minimum XRP purchase: $250k**
Asia-based: https://trade.[redacted]com/register **Minimum XRP purchase: $250k**
UK-based: https://www.[redacted].com/contact

Please have your XRP wallet ready to begin onboarding with the OTC market makers to purchase XRP.

Thank you.

139. None of the OTC purchase agreements reviewed – including a Master XRP Purchase Agreement, XRP Purchase Agreement, Master XRP Commitment to Sell Agreement, Master XRP Loan to Purchase Agreement, Ripple Currency Wholesale Sales Invoice, and Currency Purchase Letter of Intent – contained restrictions precluding OTC buyers from reselling XRP to U.S. residents.[250] As such, there is no reason to believe that XRP purchased OTC by institutional or high net worth individuals was not transferred to U.S. digital asset platforms where it could be bought by U.S. purchasers.

[249] Email from [redacted] January 5, 2018 (RPLI_SEC 0203416).
[250] Ripple, Master XRP Purchase Agreement (RPLI_SEC 0668885); Ripple, XRP Purchase Agreement (RPLI_SEC 0000517); Ripple, Master XRP Commitment to Sell Agreement (RPLI_SEC 0301016); Ripple, Master XRP Loan to Purchase Agreement (RPLI_SEC 0609008); Ripple, Ripple Currency Wholesale Sales Invoice (RPLI_SEC 0609563); and Ripple, Currency Purchase Letter of Intent (RPLI_SEC 0676713).

RIGHT TO SUPPLMENT

140. The opinions expressed in this report are based on my review and analysis of the documents that I have reviewed. I reserve the right to supplement my report and analysis based on any new evidence brought to my attention.

5. APPENDIX A – METHODOLOGY FOR TRACING THE FLOW OF XRP FROM FOREIGN-CLASSIFIED PLATFORMS TO US-CLASSIFIED PLATFORMS

141. The Sections below describe the methodology used to create the charts seen in Figure 16 and Figure 17.

Summary of Sources

142. Data considered in this analysis were sourced from reports on programmatic XRP sales by GSR and [redacted] on behalf of Ripple (3.d - Ripple XRP Sales - All Trades.csv, SEC-[redacted]-E-0047622) and the 2018 and 2019 liquidity extraction reports for GSR bot 2h (Excel_Export_2018_2h_Ripple_Liquidity_Extraction_Report.xlsx, GSR00000102 and Excel_Export_2019_2h_Ripple_Liquidity_Extraction_Report.xlsx, GSR00000103). These documents are collectively referred to as "programmatic sales reports." Publicly available blockchain data was also utilized.

Identification of Digital Asset Platforms

143. The initial platforms of interest were identified based on reports from programmatic sales conducted on behalf of Ripple. [redacted] reported trades on 18 unique digital asset platforms while GSR reported sales on 22 unique platforms. Amounts of XRP sold across each programmatic seller at each exchange were summed to produce a total count of XRP sold on each platform. 25 unique platforms were identified between the [redacted] and GSR reports. This combined list of 25 platforms from the programmatic sales reports was used for further analysis. This set included the following digital asset platforms, presented alphabetically: Binance, Bitbank, Bitfinex, Bitforex, Bithumb, Bitlish, Bitmart, Bitmax, Bitrue, Bitstamp, Bittrex, BW, Coinbase, Coinbene, Coinone, Digifinex, Hitbtc, Huobi, Korbit, Kraken, Okex, Poloniex, Upbit, ZB, and ZBG.

144. This analysis used Professor Yadav's classification to categorize the above platforms as U.S.-Classified Platforms and Foreign-Classified Platforms.

XRP Addresses for Digital Asset Platforms of Interest

145. Exchange addresses were identified using a list of verified, publicly known addresses provided by XRPscan, a web-based tool that provides public access to XRP ledger data including transaction data, account balances, current validators, and proposed amendments to the XRP ledger protocol. The application programming interface (API) provided by XRPscan includes a specific command to return a list of well-known account names.[251] For each named address on this list, XRPscan provides the associated XRP address, the associated domain name, the account name, an associated twitter handle (if present), and a verification status. For the purpose of this analysis, only addresses with a name matching one of the addresses of interest were included. Addresses were then further filtered to only those with verification status "True." XRPscan maintains proof of verification for these addresses and makes this proof available to users with a commercial license. For further validation, the "domain" field of the API response was verified to contain the web address matching each included exchange's primary website.

146. Each of the 25 digital asset platforms were checked against the XRPscan well known addresses list. Among the 4 U.S.-Classified Platforms, all platforms had at least one verified address. A total of 18 unique addresses were identified as belonging to the U.S.-Classified Platforms. This process was then repeated for the 21 Foreign-Classified Platforms. This analysis identified at least one verified address for 17 of the 21 platforms. A total of 57 unique addresses were identified as belonging to these platforms. Two addresses belonging to "Binance.US" were omitted from the set of addresses for Foreign-Classified Platforms as they

[251] XRPscan API. Well-Known Address List. https://docs.xrpscan.com/api-doc.html?highlight=well%20known.

belong to the U.S.-specific branch of Binance, resulting in a final set of 55 addresses. It should be noted that this list is not exhaustive. Platforms could have additional addresses that are not publicly verified. This conservative approach provided a lower-bound estimate of the true number of addresses used by these platforms.

Tracing Methodology

147. Addresses were split into two sets based on identification as associated with Foreign-Classified vs. U.S.-Classified Platforms. The set of addresses belonging to U.S.-Classified Platforms is referred to as "Target Recipients" while the set of those addresses belonging to Foreign-Classified Platforms is referred to as "Target Senders." These sets were verified to be disjoint: that is, an address in one set cannot be contained in the other. Tracing was performed using a publicly available dataset containing the full history of transactions on the XRP ledger.[252] Tracing was limited to only transactions with the "Payment" XRP ledger transaction type that were sent directly (one hop) from a target sender to a target recipient.[253] In the XRP ledger, a Payment refers to a specific type of transaction where a balance of some digital or fiat asset is transferred from one address to another. Payments are distinct from other transaction types such as "OfferCreate" transactions that allow users to exchange assets directly on the XRP ledger. Each included transaction was also verified to have successfully executed using the transaction result "tesSUCCESS". Only transactions that entered the ledger prior to December 22, 2020 were included in this analysis.

148. Additional conditions were added to the tracing methodology to increase execution speed and account for idiosyncrasies of the blockchain dataset/design of XRP. Only

[252] Wietse Wind. Fetch All Transactions from the XRP Ledger. https://github.com/WietseWind/fetch-xrpl-transactions.
[253] Definitions for transaction types on the XRP Ledger can be found at: XRP Ledger. Transaction Type: Payment. https://xrpl.org/payment.html.

direct XRP to XRP payments were considered, excluding cross-asset payments and those that transfer only a non-XRP asset. Partial payments, a special transaction type that allows sending an uncertain amount of XRP with a provided upper and lower bound, were considered in this analysis by using the "delivered amount" field.

149. This methodology again provided a conservative lower-bound estimate of the actual flow of XRP from Foreign-Classified to U.S.-Classified Platforms. The included address list uses only those addresses publicly verified to belong to each exchange, and only direct transactions are included. It is likely that XRP was moved between these parties indirectly (over more than one hop). Consideration of indirect XRP transfers could only increase the amount of XRP shown moving between these platforms.

Tracing Results

150. A total of 540,876 transactions met the conditions specified for this tracing for a total of 12.9 billion XRP sent from Foreign-Classified to U.S.-Classified Platforms. 320,307 unique address/destination tag pairs were found among the identified transactions. As platforms typically assign a unique destination tag to each user account, each unique address/destination tag could be considered as a unique user account when estimating the number of transaction recipients, though sometimes it is possible for a user account have multiple destination tags. Included transactions occurred between October 1, 2017 (the first full month when both GSR and [redacted] conducted programmatic sales on behalf of Ripple) to just before midnight on Dec 21, 2020.

151. Prices in U.S. dollars were estimated for each transaction using publicly available historical pricing provided by CoinMarketCap.com.[254] Each transaction amount was multiplied

[254] CoinMarketCap. XRP Historical Price Data. https://coinmarketcap.com/currencies/xrp/historical-data/.

by the daily close price of XRP/USD on the date it was sent to produce each USD estimate. The sum of these estimations for the top 5 platforms sending to Kraken is presented in Figure 17 and the overall total of these estimations is presented in Figure 16. In total, at least $5.7 billon is calculated to have been transferred from Foreign-Classified Platforms to U.S.-Classified Platforms.

6. APPENDIX B – METHODOLOGY FOR IDENTIFYING GSR PROGRAMMATIC SALES OF XRP ON BEHALF OF RIPPLE THAT WERE CONDUCTED ON THE XRP LEDGER

152. The Sections below describe the methodology used to create the chart seen in Figure 19.

Summary of Sources

153. Sources used include Ripple's wallet index (2.0 WALLET INDEX 2020.11.05 RPLI_SEC 0628141), GSR liquidity extraction reports (Excel Export - 2014-2016 - 2t - Liquidity extraction report, RPLI_SEC 0679467-467, and Excel_Export_2018_2h_Ripple_Liquidity_Extraction_Report, Bates GSR00000102) as well as publicly available blockchain data (from https://github.com/WietseWind/fetch-xrpl-transactions).

GSR Trading Bot Overview

154. This analysis focuses on the activity of GSR trading bot 2t, which programmatically sold XRP on behalf of Ripple. Given the nature of the XRP ledger, transfers of XRP between Ripple and various GSR addresses are recorded and publicly accessible. The sales of XRP occurred over a few distinct stages where XRP or other digital assets were moved between addresses, sold, or transferred to other parties. Stages of sale activity were determined based on GSR sales reporting in details tab of the 2014-2016 - 2t - Liquidity extraction report (RPLI_SEC 0679467-467).

Figure 22. Example Daily Details from GSR 2t Liquidity Extraction Report.

7/1/2016		1.1138	0.0097	0.1503	680.5250	0.0067			
Pool	**USD**	**EUR**	**JPY**	**CNY**	**BTC**	**XRP**	**Fiat (in $)**	**BTC (in $)**	**Fiat + BTC (in $)**
Cold						50,000,150			
Buffer						61,521,088			
Intermediate						1,363,899			
Market Making	87,420	0	1,820,213	89,330.55	108.45	2,090,051	$118,589	$73,801	$192,391
Profit	0					1,000	$0		$0
TPW	304,607				0.00	818	$304,607	$2	$304,609
	392,026	0	1,820,213	89,330.55	108.45	114,977,006	$423,196	$73,803	$496,999

155. Note that until the "Market Making" wallets are reached, all reporting is denoted in XRP. The "Market Making" and "TPW" wallets receive balances in BTC or various fiat currencies. Despite being labeled as "Market Making" in the liquidity extraction reports, these wallets were engaged in the sale of XRP on behalf of Ripple and are therefore referred to as "trading wallets" in this Section. In the daily summary tab of the same document, payouts to Ripple were preceded by TPWR, indicating the name for the address where Ripple received sales revenue on the XRP ledger. "Cold" and "Buffer" refer to addresses where GSR stored XRP after receiving XRP from Ripple but before distributing to intermediary and trading wallets. Trading wallets were the only addresses aside from the TPW payout wallet to list sales/transfers in BTC or fiat currencies and were therefore inferred to be the point of sale. The purpose of intermediary wallets is not clear from this reporting, but due to their placement in reporting between buffer and trading wallets, it was inferred that these intermediaries distributed smaller sums of XRP to the trading wallets. Based on GSR reporting and these inferences, this analysis sought to examine the flow of funds as follows:

1. Transfer of XRP from Ripple to GSR cold wallet
2. Transfer of XRP from GSR cold wallet to GSR buffer wallet
3. Transfer of XRP from GSR buffer wallet to GSR intermediary wallets
4. Transfer of XRP from GSR intermediary to GSR trading wallets
5. Transfer of USD/BTC from trading wallets to GSR profits distribution (TPW) wallet
6. Transfer of USD from GSR profits distribution (TPW) wallet back to Ripple (TPWR)
7. Transfer of USD from Ripple TPWR to some outside entity for withdrawal.

156. Note that the 'Profit' category shown in Figure 22 is excluded from this analysis as it was presumed to refer to GSR profit from sales. To verify the flow structure described above, addresses at various stages of this process were identified and blockchain tracing was performed on a sample time window. This time window was defined as May 1 to July 1, 2016. The goals of this tracing were to: i) analyze the flow of funds associated with bot 2t, ii) identify the GSR intermediary and trading addresses used to sell XRP, and iii) determine where Ripple sent sales revenue after receiving at the TPWR address.

Identification of Initial Addresses

157. The primary means of address identification for this analysis was referencing addresses found in GSR liquidity extraction reports with the Ripple wallet index (RPLI_SEC 0628141). This document was searched for the names included above, specifically "GSR," "Cold," "Buffer," "TPW," and "TPWR." The initial addresses of interest were labeled as "GSR Profits Distribution 2 (TPW_2t GSR)" ([redacted]) and "Fund II TPWR 2" ([redacted]) in the wallet index. The daily summaries in the extraction reports indicated that GSR used the TPW address to distribute programmatic sales revenue to Ripple at the TPWR address. The "Fund II" term in the TPWR address label returned an additional address ([redacted]). Analysis of this address' transaction history showed repeated large transfers to an address labeled "GSR 2t new Cold Wallet" ([redacted]) in the Ripple wallet index. The naming of this address confirmed that it was used for the 2t bot previously discussed. An additional address, named only as "buffer" ([redacted]) in Excel_Export_2018_2h_Ripple_Liquidity_Extraction_Report.xlsx, received many large transfers from the GSR 2t cold wallet. Based on the transfer of funds from a labeled 2t address, this wallet was inferred to have been used as a buffer for both bots 2t and 2h.

Table 8. Identified Addresses.

Name	Index	Address
Ripple Initial	Fund II	[redacted]
Cold	GSR 2t new Cold Wallet	
Buffer	Buffer	
TPW	TPW_2t GSR	
TPWR	Fund II TPWR 2	

Tracing Methodology

158. At several stages in this analysis, confirmatory blockchain tracing was performed using a publicly available dataset containing the full history of transactions on the XRP ledger. Transactions of the "Payment" and "OfferCreate" types were reviewed at each stage. In all cases, only transactions that resulted in response code "tesSUCCESS" and successfully entered the XRP ledger were considered. The flow of funds between these addresses was considered in terms of XRP, BTC, USD, and other fiat currencies.

Transfer of XRP from Ripple to GSR Cold Wallet

159. The candidate origin address for Ripple funds was selected based on its name (Fund II) matching the name of Ripple's TPWR address (Fund II TPWR 2) in Ripple's wallet index. Four XRP-to-XRP payments were identified between this Ripple controlled address and GSR's '2t new Cold Wallet' during the sample window. These transactions moved a total of 290 million XRP into GSR's custody.

Transfer of XRP from GSR Cold Wallet to GSR Buffer Wallet

160. During the sample window, 5 transactions were identified between GSR's 2t cold wallet and an address found in the 2h Liquidity Extraction Report (GSR00000102). This address was labeled as the Buffer for the 2h bot. These 5 transactions (all XRP-XRP payments) moved a total of 240 million XRP to the Buffer address. These transactions between the 2t cold wallet and 2h buffer suggest that the same buffer address was used for both bots despite the 2t files not

identifying their buffer address. This inference was validated by continued tracing forward from this buffer address presented later in this document.

Identification of GSR Intermediary and Trading Addresses

161. Beyond the buffer address, the next identified address at this stage of the analysis was the 'TPW_2t GSR' from which GSR sent revenue back to Ripple. The intermediary and trading addresses were inferred to exist between these addresses. This inference was validated by identifying transactions from the buffer address to the TPW address over 3 hops: i) buffer to intermediary, ii) intermediary to trading, and iii) trading to TPW. As expected, no direct transactions were found between the buffer and TPW addresses.

162. Addresses that received funds from the buffer wallet during the sample window were dubbed 'candidate intermediary addresses' due to their position directly following the buffer in transaction sequence. Each of these addresses received at least one payment transaction from the buffer address during the sample window. A set of candidate trading wallets was created by identifying all addresses that sent at least one payment transaction to the TPW address during the sample window. 96 candidate intermediary addresses and 68 candidate trading addresses were identified. It was further confirmed that each candidate trading address made at least one OfferCreate transaction that exchanged XRP for another digital asset or fiat currency during the sample window. Each of the 68 candidate trading wallets met this criterion.

163. The transaction histories of the candidate intermediary and trading addresses were then checked for transfers where a candidate intermediary sent XRP directly to a candidate trading address. Each address that made such a transaction was added to a list of validated intermediary or trading addresses depending on its position as sender or recipient of these transactions. All 96 of the candidate intermediary addresses were confirmed to send at least one

transaction to a candidate trading address; however, only 20 of the 68 candidate trading addresses received XRP from a candidate intermediary during the sample window. XRP flowed from buffer to intermediary, intermediary to trading wallets for sale, then from trading wallets to TPW as fiat currency or BTC. Transaction volume at each of these stages are described in the following sections.

Transfer of XRP from GSR Buffer Wallet to GSR Intermediary Wallets

164. The buffer address identified in the previous stage sent a total of 226 million XRP to the intermediary wallets during the sample window. A total of 75,348 transactions with a mean size of 3,003.24 XRP were sent to 96 unique intermediaries. Each of these intermediaries was verified to send at least some portion of those funds forward to the set of trade addresses. All transactions were again XRP-to-XRP.

Transfer of XRP from GSR intermediary to GSR trading wallets

165. Transactions between the 96 identified intermediary addresses and the 20 identified trading addresses resulted in 259 million XRP moving from intermediary to trade addresses over 80,291 XRP-to-XRP transactions. After this stage, it was expected that the trading wallets would sell the received XRP in exchange for BTC or fiat currencies. As previously described, each of the 20 trading addresses was confirmed to have made at least one OfferCreate transaction during this window. A total of 783,776 OfferCreate transactions were successfully entered into the ledger by these addresses during the sample window. The least active trading address entered 8,888 while the most active created 71,097 offers.

Transfer of USD/BTC from Trading Wallets to GSR Profits Distribution (TPW) Wallet

166. The final step of activity in GSR custody was the pooling of sales revenue into a single address for distribution back to Ripple. This address, labeled as GSR profits distribution

(TPW), received 5,974 transactions from the 20 trading addresses. These transactions sent BTCand USD via the XRP ledger. The TPW address also sent 612 'OfferCreate' Transactions exchanging BTC for USD during the sample window.

Transfer of USD from GSR profits distribution (TPW) wallet back to Ripple (TPWR)

167. The TPW address sent 6 transactions for a total of $1.13 million to the Ripple Fund II TPWR address during the sample window. At this point, custody was returned to Ripple and GSR reported the revenue payments in the liquidity extraction reports.

Transfer of USD from Ripple TPWR to Outside Entity for Withdrawal

168. The full transaction history of the Ripple TPWR address for the sample window was obtained for analysis at this stage. This address received a large amount of Bitstamp-issued USD on the XRP ledger. Ripple's TPWR address then sent 4 transactions totaling $830,000 to a Bitstamp address. Each transaction had the same destination tag (68836371). Destination tags are typically used by exchanges to reference specific customer deposit addresses. By including this tag, Ripple effectively marked these funds as intended for the same account holder at Bitstamp. Ripple is the presumed owner of the Bitstamp account associated with this destination tag.

Table 9. Updated Summary of Identified Addresses.

Name	Index	Address
Ripple Initial	Fund II	[redacted]
Cold	GSR 2t new Cold Wallet	
Buffer	Buffer	
Intermediate	Not Listed	Multiple (n = 96)
Trading	Not Listed	Multiple (n = 20)
TPW	TPW_2t GSR	[redacted]
TPWR	Fund II TPWR 2	
Bitstamp	Ripple Bitstamp	[redacted] DT: 68836371

Full Structure of GSR Bot 2t

169. Based on this analysis, the presented model for bot 2t was verified and extended an additional step forward to capture Ripple's deposits to a digital asset exchange (Bitstamp). The following stages illustrate the complete flow of funds from Ripple Fund II as XRP to Ripple's Bitstamp deposit address as USD:

Table 10. Stages of 2t Bot Activity and Associated Asset/Fiat Currency.

Step	Description	Asset
1	Ripple Fund II to GSR 2t cold wallet	XRP
2	GSR cold wallet to Buffer	XRP
3	Buffer to many Intermediary addresses	XRP
4	Intermediary addresses to Trading addresses	XRP
5	Trading addresses to TPW	BTC, USD
6	TPW to Ripple TPWR	USD
7	Ripple TPWR to Bitstamp	USD

170. Each address presented in Table 9 engaged in the transfer or sale of XRP originating from Ripple during the sample window. This analysis captured only intermediary addresses that directly received XRP from the buffer wallet. It remains possible that additional intermediary or trading addresses exist that were not identified in this analysis, either because they did not trade during the sample window or because they received funds over more than one hop from the GSR Buffer address.

171. Where multiple addresses existed at a stage, namely the intermediary and trading wallets, a subset of 4 addresses were drawn for inclusion in the final flow chart presented in Figure 19. These addresses were selected for illustrative purposes based on connections with other addresses in the figure.

7. APPENDIX C – METHODOLOGY FOR DETERMINING THE LOCATION OF XRL LEDGER VALIDATORS

173. The Sections below describe the methodology used to create the chart seen in Figure 20.

Summary of Sources

174. This analysis draws upon Ripple's *rippled* source code repository (*rippled* is the name of the source code for nodes that run the XRP Ledger), Ripple's archived history of its Unique Node List ("UNL", which is the list of the official domains validating and recording all the transactions on the XRP Ledger), the XRP Charts' validator registry, and the I.P. and domain lookup tools provided by the ViewDNS website. All of this information is publicly available.

Description

175. The figure shows the percentage of validators on the default Ripple UNL that have historically been based in the United States. It covers the time period of September 2012 to December 2020. Each data point represents the state of the UNL at the end of that month. The blue part of the graph is the percentage of validating nodes operating outside of the US, while red is the percentage of validating nodes operating in the US.

Methodology

176. This analysis tracks two lists of validators. From September 2012 through October 2017, it relies on the list of public keys included in the validators-example.txt file in early versions of the *rippled* source code.[255] These validators were all owned and operated by Ripple, a U.S. company, and early iterations of the default configuration files include U.S. I.P. addresses to connect to these validators. Later iterations of these files, leading up to the

[255] Ripple. Rippled Source Code. https://github.com/ripple/rippled.

publishing of the first default UNL, include "ripple.com" as the Ripple-owned validators' domain. This domain can be traced to a U.S. server, and it has always been based in the U.S.[256] Subsequent validator lists have consistently listed Ripple's validators' domains as the subdomain "validator.ripple.com," which again appears as in the United States.[257] Therefore, every validating node operated by Ripple is viewed as U.S.-based. For November 2017 through December 2020, this analysis uses records of the dynamic validator list Ripple publishes at vl.ripple.com.[258] The validators included in these lists are split into "Non-U.S." and "U.S." primarily through geolocation of each organization or individual's domain, which is easily accessed through XRP Charts' validator registry.[259] In certain cases where the IP address of a validator resolves to a U.S. location, but its organization is headquartered outside of the US, those validators are discretionarily sorted into "Non-US" to maintain a conservative estimate of validators based in the US.

Findings

177. As demonstrated by the figure, a significant number of XRP Ledger validators operate in the U.S. In fact, the majority of default UNL validators from September 2012 to December 2020 are based in the US. Furthermore, for the majority of the XRP Ledger's existence up until June 2018, the default validator list has only included Ripple-operated validators, and so the list has been entirely US-based for most of its existence.

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8. APPENDIX D – LIST OF DOCUMENTS AND DATA SOURCES CONSIDERED FOR THIS REPORT

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[redacted] XRP Sales Auditing Spreadsheet.	[redacted]000277

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ViewDNS. View DNS Info and IP Location for validator.ripple.com.	https://viewdns.info/reverseip/?host=validator.ripple.com&t=1; https://viewdns.info/iplocation/?ip=52.38.41.179
ViewDNS. View DNS info for bitstamp.net.	https://viewdns.info/iphistory/?domain=bitstamp.net
ViewDNS. View DNS Info for Ripple.com.	https://viewdns.info/iphistory/?domain=ripple.com
Weiste Wind. Fetch All Transactions from the XRP Ledger.	https://github.com/WietseWind/fetch-xrpl-transactions
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XRP Chat. Discussion of XRP listing for short term trading on Plus500.	https://www.xrpchat.com/topic/6549-ripple-xrp-added-to-plus500-trading-platform/
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	https://www.kraken.com/en-us/learn/what-is-aave-lend https://medium.com/anchorage/anchorage-supports-xrp-78f088c8b5e7 https://www.anchorage.com/ https://web.archive.org/web/20201221020259/https://www.anchorage.com/ https://lab577.io/wp-content/uploads/2019/08/LAB577_BCB_Article.pdf https://www.bcbgroup.com/tag/xrp/ https://www.bitcoinsuisse.com/fundamentals/what-is-ripple-xrp https://support.bitcoinsuisse.com/hc/en-us/articles/360002363819-Which-crypto-assets-can-I-buy-and-sell-through-Bitcoin-Suisse-Online- https://www.bitgo.com/resources/integrations ("Custody" and "Prime Services" sections) https://bitso.com/ https://celsius.network/ https://celsius.network/rates/ https://celsius.network/crypto-loans https://coinloan.io/earn-interest-on-crypto/ https://www.prnewswire.com/news-releases/more-than-14-million-xrp-deposits-within-the-first-week-of-listing-on-coinloan-301081431.html https://coinme.com/about/ https://nydig.com/ https://coinmarketcap.com/exchanges/okcoin/ https://otcbtc.io/ https://www.cryptowisser.com/exchange/otcbtc/coins/?lang=es https://plasmapay.com/personal-features https://docs.pokt.network/home/resources/references/supported-blockchains https://www.liquid.com/company/ https://www.liquid.com/company/ https://www.cbinsights.com/company/quoine https://blog.revolut.com/important-update-on-xrp/ https://www.revolut.com/about-revolut https://www.bbc.com/news/business-47768661 RPLI_SEC 0981977 https://help.ripio.com/hc/es/articles/1500003259382--Con-qu%C3%A9-criptomonedas-puedo-operar-en-Ripio- https://www.ripio.com/ar/criptomonedas/ https://exchange.ripio.com/es/ https://securitize.io/resources/preferred-blockchain https://tokenist.com/coinbase-ripple-invest-in-securitize-to-tokenize-the-7-trillion-securities-industry/ https://www.sesocio.com/criptomonedas

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9. APPENDIX E – CV

[redacted]

KEY QUALIFICATIONS AND EXPERIENCES

- Leads data-driven investigations in cryptocurrency fraud cases involving Ponzi schemes, market manipulation, money laundering, and securities violations
- Provides technical assistance to government regulators, agencies, and private companies related to digital asset technologies and forensic data analytics
- Leads team of data scientists analyzing blockchain data such as on-chain trading, smart contract activity, DeFi platforms, and tracing complex funds transfers

[redacted]

- Runs an investment partnership, with first-hand experience investing in digital assets, trading digital assets on cryptocurrency spot and futures markets, executing digital asset arbitrage strategies, and developing quantitative and discretionary investment strategies across a wide range of asset classes

EDUCATION

[redacted]
M.S., Electrical Engineering, May 2010

[redacted]
B.S., Electrical Engineering, May 2006
Honors: magna cum laude

PROFESSIONAL EXPERIENCE

[redacted] *Jan '19 – present*
Director

- Leads data-driven investigations in cryptocurrency fraud cases involving money laundering, market manipulation, theft, and securities violations
- Manages a team that creates custom software and data analysis solutions to trace, cluster, and deanonymize cryptocurrency transactions
- Builds statistical tools to analyze trading data and algorithmically identify manipulative trading activity
- Analyzes activity patterns in smart contracts, ERC-20 tokens, and fund transfers on the Ethereum blockchain to identify fraudulent financial activity

[redacted] *Sep '16 – present*

Founder and CEO

- Founded a quantitative investment fund originally focused on cryptocurrency arbitrage as well as derivatives strategies in equity, commodities, and currency markets
- Makes discretionary investments across a broad collection of private and public assets – equities, commodities, bonds, real estate, derivatives, private businesses, and digital assets
- Designed software to automate execution of multiple investment strategies, identify arbitrage opportunities, manage counterparty risk, and securely store cryptocurrency assets
- Created multi-asset algorithmic investment strategies to exploit pricing inefficiencies across time, exchanges, and assets in cryptocurrency markets
- Developed derivatives trading strategies utilizing machine learning and statistical signal processing techniques

[redacted] *Jul '15-Aug '16*

Founder and CEO

- Founded a technology company that developed automotive radar for autonomous vehicles
- Designed radar hardware and signal processing algorithms to enable automated detection of objects in a vehicle's environment
- Managed the company's engineering, fundraising, and recruiting efforts

[redacted] *Jan '13-Jun '15*

Senior Engineer

- Designed, modeled, tested, and defined requirements for multiple large radar projects
- Engineering and project management focused primarily on hardware, signal processing, and system integration

[redacted] *Sep '10- Dec '12*

Associate Technical Staff

- Developed signal processing algorithms for airborne radar systems
- Researched and prototyped novel detection and classification algorithms for high performance radar signal processing projects

10. APPENDIX F – ANALYSIS OF "91 BUSINESSES" IN PROFESSOR ADRIAENS' REPORT

10. APPENDIX F – ANALYSIS OF "91 BUSINESSES" IN PROFESSOR ADRIAENS' REPORT[1]

Business Name	Categorization	Determination: Is XRP Core to business?	Notes on Determination	Source(s) Considered
ActionFactory Inc. (d/b/a Stronghold)	Payments	No	Stronghold is primarily a fiat payment platform that originated with the Stellar platform/blockchain. It issues a ledger agnostic digital asset called SHx. Only two of 18 markets involving SHx listed on CoinMarketCap also involve XRP. Stronghold's digital asset trading platform first listed two XRP markets in February 2019, among at least seven other markets, the year after its venture capital round.	https://www.xrparcade.com/news/xrp-added-on-stronghold-trading-three-xlm-pairs-removed/; https://www.crunchbase.com/organization/stronghold/company_financials; https://stronghold.co/learn/strongholds-backstory; https://coinmarketcap.com/currencies/stronghold-token/markets/
BitBounce	Payments	No	This platform added XRP two years after its last funding round. Website is no longer active.	https://twitter.com/bitbounceio/status/1103717100843982848; https://www.crunchbase.com/organization/turing-technology-inc-/company_financials
Bitgild	Payments	No	XRP is one of at least 18 digital assets accepted by this platform, which uses a third party payment provider to handle digital asset transactions.	https://bitgild.medium.com/buy-gold-with-crypto-5cf7ecaff53a

[1] This Appendix contains information compiled while examining Professor Adriaens' list of "91 Businesses." It supplements and should be considered together with my opinion given in Section 3 of this Rebuttal report. To the extent this Appendix describes what a company is or does, that assessment is based on my review of the documents identified in the "Source(s) Considered" column.

BitPay	Payments	No	Professor Adriaens' criteria used to identify companies that purportedly demonstrate the commercial utility of XRP or the XRP Ledger states that only companies founded after Ripple's incorporation should be considered. In Appendix D, Adriaens lists a founding date prior to 2012. Professor Adriaens also lists BitPay as having had a partnership with Ripple in Section IV.B of his report pertaining to "Products Enabled by Ripple," which should have excluded BitPay from this analysis according to Professor Adriaens' criteria.	Expert Report of Peter Adriaens, October 3, 2021 at 62, 64 and Appendix D; https://www.globenewswire.com/news-release/2019/10/02/1924157/0/en/BitPay-Announces-Plans-to-Support-XRP-for-Payment-Processing-and-Cross-Border-Transfers.html; https://xrpscan.com/tx/F1267D15E99C4D271DD1AB98D5BD169B540CE1E23E940E7AA4D95538AC295CD3
Blockdaemon	Payments	No	Blockdaemon originated with the idea to provide infrastructure to operate Ethereum nodes more easily. The company offers XRP node setup as a service in addition to node setup for 40+ blockchain networks.	https://blockdaemon.com/marketplace/xrp/; https://blockdaemon.com/about/; https://blockdaemon.com/
Bpay	Payments	No	Bpay is no longer operating according to Crunchbase. There is no apparent connection to XRP or the XRP Ledger, but this cannot be verified, as Bpay's website is not functional.	https://www.crunchbase.com/organization/bpay-io

Cobo	Payments	No	Cobo lists "Support for 40+ Chains and More Than 180+ Tokens" as a primary feature of its wallet service, and XRP is one of the many supported digital assets.	https://cobo.com/wallet
Coil	Payments	Maybe	Coil is a web monetization platform built on Ripple's Interledger Protocol (ILP), not the XRP Ledger itself. It appears that XRP was initially the only digital asset supported for payouts, but several other digital assets are now supported for payouts through Coil's partnership with Uphold. The ILP was developed by the Interledger Foundation, which was funded and founded by Ripple and its Board of Directors. Coil also received a 1 billion XRP grant from Ripple. Coil may therefore be considered among "Products Enabled by Ripple" according to Professor Adriaens' criteria.	https://coil.com/about; https://webmonetization.org/; https://www.coindesk.com/ripple-is-giving-away-1-billion-xrp-in-massive-bid-to-fund-online-content; https://www.theverge.com/2020/8/19/21373988/imgur-emerald-subscription-service-announced-coil-micropayments; https://www.businesswire.com/news/home/20210414005467/en/Interledger-Foundation-Launches-to-Build-More-Equitable-and-Creative-Opportunities-on-the-Web; https://www.prnewswire.com/news-releases/uphold-announces-interledger-connectivity-with-coil-integration-301060372.html
CoinCorner	Payments	No	CoinCorner offers a Bitcoin-centric solution: "We're CoinCorner, a team of friendly and enthusiastic people, working together to make Bitcoin as easy for you as possible." Does not currently mention XRP on its website.	https://www.crunchbase.com/organization/coincorner; https://twitter.com/coincorner/status/1009390867575115777?lang=en

Coinify	Payments	No	Coinify supports 19 digital assets for acceptance as payment by merchants. XRP is not included in this list.	https://help.coinify.com/hc/en-us/articles/360014079620-List-of-supported-cryptocurrencies-for-merchants
CoinPayments	Payments	No	XRP is one of hundreds of digital assets supported by this payment and custody platform.	https://www.coinpayments.net/supported-coins
Coins.ph	Payments	No	Coins.ph offers a variety of products and services, including bill payment, cardless ATM, remittances and purchasing digital assets. XRP is one of four digital assets listed for sale on this platform.	https://coins.ph/, https://coins.ph/buy-cryptocurrency/; ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162.
CrumbsApp	Payments	No	This company's website is no longer active, but it only began supporting XRP in 2018, which was the year after its last round of venture capital funding.	https://twitter.com/crumbsappio/status/1047227972162347008; https://www.crunchbase.com/organization/crumbs-6012/company_financials
Crypto.com	Payments	No	XRP is one of 150+ digital assets traded and 30+ digital assets used for payments on this platform.	https://crypto.com/pay-merchant; https://crypto.com/
Cryptopay	Payments	No	XRP is one of at least four digital assets supported by this platform.	https://cryptopay.me/bitcoin-wallet

Cryptosa	Payments	No	This company is a blockchain startup advisor and accelerator with a portfolio of 10 projects, six of which are ongoing. There is no evidence that XRP or the XRP Ledger is connected to these portfolio companies.	https://cryptosa.org/portfolio/; https://cryptosa.org/#about
Ecwid	Payments	No	Professor Adriaens' criteria used to identify companies that purportedly demonstrate the commercial utility of XRP or the XRP Ledger states that only companies founded after Ripple's incorporation should be considered. In Appendix D, Adriaens lists a founding date prior to 2012.	Expert Report of Peter Adriaens, October 3, 2021 at 64 and Appendix D.
Fliqpay	Payments	No	XRP is one of at least five digital assets supported by this platform.	https://fliqpay.com/blog/crypto-payments-on-fliq/
HubrisOne	Payments	No	There is no apparent connection between this business and XRP or the XRP Ledger. This platform only seems to support ERC-20 tokens on the Ethereum blockchain; therefore, XRP is likely not a supported digital asset. If it is, XRP would be one of hundreds of digital assets available on this platform.	hubrisone.com
Keyless-Technologies	Payments	No	KeylessTechnologies is a biometric security company developing methods to store digital keys and passwords. Ripple provided some funding and publicity through Xpring (and this company may therefore be considered "Products Enabled by Ripple" according to Professor Adriaens' criteria), but the	https://keyless.io/; https://www.coindesk.com/markets/2019/10/30/ripple-invests-in-biometric-cybersecurity-startups-22-million-round/

			company's product appears unrelated to XRP and the XRP Ledger.	
LuckboxE-sports	Payments	No	Support for XRP, BTC, ETH, and LTC were added at the same time in Jan 2020. This company was previously a fiat-only sports betting platform.	https://blog.luckbox.com/luckbox-welcomes-bitcoin-ethereum-xpr-and-litecoin-deposits-b45e78c6af12
Luckyfish	Payments	No	XRP is one of 22 assets accepted by this platform, which promotes itself as a "Bitcoin Casino."	https://luckyfish.io/faq#aboutLuckyFish
Luckygames	Payments	No	Luckygames was a gambling site which advertised that it accepted payment in 103 digital assets before closing down.	https://web.archive.org/web/20210711191910/; https://luckygames.io/
Oveit	Payments	No	Oveit is an event ticketing and registration software. XRP is one of five accepted digital assets used for payments, in addition to fiat currencies. Oveit began supporting digital asset payments by partnering with Crypto.com in 2020, four years after it was founded.	https://oveit.com/; https://oveit.com/blog/2020/03/23/crypto-payments-events-venues/
PPCProtect	Payments	No	There is no mention of XRP on this company's site, and there is no clear connection between the company and XRP or the XRP Ledger. The only digital asset PPCProtect appears to accept as payment is Bitcoin.	https://ppcprotect.com/; https://www.acceptedhere.io/catalog/company/ppcprotect-com/

Propy	Payments	No	XRP added as a payment option in 2018, 2 years after opening. Propy raised $15.5 million of a total of $16.7 million in funding in 2017 prior to using XRP.	https://www.crunchbase.com/organization/propy/company_financials; https://ripplecoinnews.com/ripples-ecosystem-continues-to-grow-as-xrp-partners-with-propy-and-gets-listed-on-stock-ios-app/
PumaPay	Payments	No	Given that PumaPay supports all ERC-20 tokens, XRP is one of 850+ digital assets that are accepted. Pumapay did not support XRP until two years after its founding.	https://pumapay.io/we-now-support-ripple-stellar; https://wiki.pumapay.io/pumapay-wallet; https://twitter.com/pumapay/status/1194888336936230914
Shopify	Payments	No	Professor Adriaens' criteria state that only companies founded after Ripple's incorporation should be considered. In Appendix D, Adriaens lists a founding date prior to 2012.	Expert Report of Peter Adriaens, October 3, 2021 at 64 and Appendix D.
SpotOn	Payments	No	SpotOn provides technology solutions for small business; there is no current mention of XRP on its website. It previously announced launching digital asset capabilities in a partnership with a company called VaultBank. However, that company is apparently now defunct and evidence was not found that these digital asset capabilities were ever completed. Ripple also offered incentives to SpotOn to use ODL, but evidence was not found that SpotOn ever actually did so.	https://www.spoton.com/; https://www.prnewswire.com/news-releases/spoton-enables-merchants-to-accept-cryptocurrency-with-vaultbank-partnership-300758252.html; https://vaultbank.io/; ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162.
Stark-Payments	Payments	No	The URL provided by Professor Adriaens redirects to new site: https://www.qidigital.com/. The new site	https://www.qidigital.com/blockchain-payments/

			states that four digital assets are accepted for payment and does not include XRP.	
TapJets	Payments	No	XRP is no longer among the four (formerly five) digital assets accepted as payment by this business.	https://www.tapjets.com/article/private-jet-pay-with-monero
Travala	Payments	No	XRP is one of 67 digital assets and 13 fiat currencies accepted by this platform.	https://www.travala.com/payment/xrp; https://twitter.com/travalacom/status/1108369768464039937?lang=en
Trip.io	Payments	No	The trip.io website is no longer active, and it is unclear if this company is defunct. This company is or was a Chinese marketplace for travel booking which promoted its own TRIO token for use on their platform. Its social media posts also reference accepting several other digital assets, but a reference to XRP was not identified in the sources reviewed.	https://trip.io/; https://medium.com/tripio/the-importance-of-cooperation-with-stable-coins-559d63d53a2; https://medium.com/tripio/tripio-2018-annual-summary-f8081951f5d7; https://twitter.com/thetripio; https://www.cbinsights.com/company/tripio;
uConektPAY	Payments	No	XRP is one of 100+ digital assets supported by this platform.	https://uconekt-pay.com/#!/about
ViaBTC	Payments	No	This company is engaged in pooling resources to mine 18 digital assets. XRP (of which there is no mining involved) is not among these assets.	https://www.viabtc.com/
WeMakePrice	Payments	No	Professor Adriaens' criteria state that only companies founded after Ripple's incorporation should be considered. In Appendix D, Adriaens lists a founding date prior to 2012.	Expert Report of Peter Adriaens, October 3, 2021 at 64 and Appendix D

Wirex	Payments	No	Two rounds of venture capital funding were completed prior to the addition of XRP to the platform in 2018, (approximately $3.2 million of $7.9 million raised). XRP is apparently one of 38 digital assets and 9 fiat currencies supported on the platform.	https://wirexapp.com/blog/post/a-ripple-at-wirex-0036; https://www.crunchbase.com/organization/wirex-limited/company_financials; https://wirexapp.com/cryptocurrencies
Worldcore	Payments	No	This site appears to be a launch (ICO) for a token distinct from XRP. There is no apparent connection to XRP/XRP Ledger.	https://worldcore.com/
AavePay	Trading Platforms/ Financial Services	No	Aave is a liquidity protocol implemented through a system of smart contracts that run on the Ethereum blockchain. XRP is not among the over 30 digital assets available on this platform.	https://aave.com/; https://www.kraken.com/en-us/learn/what-is-aave-lend
Anchorage	Trading Platforms/ Financial Services	No	Anchorage apparently began offering custody services (i.e., digital asset storage and security services) for institutional investors in April 2020. However, XRP was no longer supported as of Dec. 21, 2020 according to its homepage, which listed 37 other digital assets as being supported at that time.	https://medium.com/anchorage/anchorage-supports-xrp-78f088c8b5e7; https://www.anchorage.com/ https://web.archive.org/web/20201221020259/https://www.anchorage.com/

BCBGroup	Trading Platforms/ Financial Services	No	BCBGroup is a digital financial services platform, but there is currently no mention of XRP on its website, and there is no indication that the XRP Ledger is in any way core to this business.	https://lab577.io/wp-content/uploads/2019/08/LAB577_BCB_Article.pdf; https://www.bcbgroup.com/tag/xrp/
BitcoinSuisse	Trading Platforms/ Financial Services	No	XRP is not listed among the over 40 digital assets available to trade on this platform.	https://www.bitcoinsuisse.com/fundamentals/what-is-ripple-xrp; https://support.bitcoinsuisse.com/hc/en-us/articles/360002363819-Which-crypto-assets-can-I-buy-and-sell-through-Bitcoin-Suisse-Online-
BitGo	Trading Platforms/ Financial Services	No	XRP is one of over 500 digital assets supported by Bitgo's wallet. Bitgo's trading, lending, and settlement services do not support XRP.	https://www.bitgo.com/resources/integrations ("Custody" and "Prime Services" sections)
Bitso	Trading Platforms/ Financial Services	No	XRP is one of 14 digital assets that can be traded on this platform (the homepage mentions nine digital assets but the dropdown menu lists 14).	https://bitso.com/
Bitstamp	Trading Platforms/ Financial Services	No	Professor Adriaens' criteria state that only companies founded after Ripple's incorporation should be considered. In Appendix D, Professor Adriaens lists a founding date prior to 2012.	Expert Report of Peter Adriaens, October 3, 2021 at 64 and Appendix D.

Celsius-Network	Trading Platforms/ Financial Services	No	Celsius allows users to deposit and earn interest on 46 digital assets. XRP is included in this list although the interest rate for XRP is now 0%. XRP is not in the list of 33 digital assets which can be staked as collateral for loans.	https://celsius.network/; https://celsius.network/rates/; https://celsius.network/crypto-loans
CoinLoan	Trading Platforms/ Financial Services	No	XRP is one of 25 digital assets that can be traded and/or used as collateral for loans on this platform.	https://coinloan.io/earn-interest-on-crypto/; https://www.prnewswire.com/news-releases/more-than-14-million-xrp-deposits-within-the-first-week-of-listing-on-coinloan-301081431.html
CoinMe	Trading Platforms/ Financial Services	No	Coinme has a partnership with Moneygram and lists Xpring as one of its supporters (and may therefore be considered “Products Enabled by Ripple” according to Professor Adriaens’ criteria). However, its kiosks only appear to support Bitcoin.	https://coinme.com/about/
NYDIG	Trading Platforms/ Financial Services	No	XRP is not central to this digital asset management and financial services firm, which describes itself as "a bitcoin company."	https://nydig.com/
Okcoin	Trading Platforms/ Financial Services	No	XRP is not among the 25+ digital assets currently available for trading on this platform.	https://coinmarketcap.com/exchanges/okcoin/

Otcbtc	Trading Platforms/ Financial Services	No	XRP is one of 36 digital assets available on this platform.	https://otcbtc.io/; https://www.cryptowisser.com/exchange/otcbtc/coins/?lang=es
PlasmaPay	Trading Platforms/ Financial Services	No	PlasmaPay advertises as a multi-functional platform (including "decentralized financial services and infrastructure"). XRP is one of 3,000+ digital assets available on this platform.	https://plasmapay.com/personal-features
Plus500	Trading Platforms/ Financial Services	No	Professor Adriaens' criteria state that only companies founded after Ripple's incorporation should be considered. In Appendix D, Adriaens lists a founding date prior to 2012.	Expert Report of Peter Adriaens, October 3, 2021 at 64 and Appendix D.
Pocket-Network	Trading Platforms/ Financial Services	No	This company provides remote procedure call (RPC) network access for various digital assets. XRP does not appear to be among the supported digital assets.	https://docs.pokt.network/home/resources/references/supported-blockchains
Qryptos (Liquid)	Trading Platforms/ Financial Services	No	XRP is one of 80 digital assets available on the Liquid (formerly Qryptos) trading platform.	https://www.liquid.com/company/
Quoine	Trading Platforms/ Financial Services	No	Quoine is the name of the company that launched the Qryptos trading platform in the table entry directly above this one. The company and its exchange eventually rebranded as Liquid, and Professor Adriaens provides the link to Liquid's website for both entries in his list. Quoine	https://www.liquid.com/company/; https://www.cbinsights.com/company/quoine

			is therefore a duplicate entry of Qryptos (Liquid), above; these are not two separate businesses.	
Revolut	Trading Platforms/ Financial Services	No	Revolut is a mobile app that offers a variety of services including money transfer, global ATM usage, budgeting assistance, and digital asset exchange and custody. Revolut's digital asset trading platform, launched two years after the company's founding, supports 30+ digital assets, including XRP, although it is not possible to withdraw XRP to be subsequently transferred on the XRP Ledger. Ripple paid incentives to Revolut to support XRP, and it may therefore be considered "Products Enabled by Ripple" according to Professor Adriaens' criteria	https://blog.revolut.com/important-update-on-xrp/; https://www.revolut.com/about-revolut https://www.bbc.com/news/business-47768661; RPLI_SEC 0981977
Ripio	Trading Platforms/ Financial Services	No	The Ripio website lists 12 digital assets available for trade on its platform and does not include XRP.	https://help.ripio.com/hc/es/articles/1500003259382--Con-qu%C3%A9-criptomonedas-puedo-operar-en-Ripio-; https://www.ripio.com/ar/criptomonedas/; https://exchange.ripio.com/es/
Securitize,Inc.	Trading Platforms/ Financial Services	No	Securitize does not list XRP as an asset available for trading and states a goal of being "blockchain agnostic." It did, however, receive significant funding from Ripple and might be considered "Products Enabled by Ripple" according to Professor Adriaens' definition.	https://securitize.io/resources/preferred-blockchain; https://tokenist.com/coinbase-ripple-invest-in-securitize-to-tokenize-the-7-trillion-securities-industry/

Sesocio	Trading Platforms/ Financial Services	No	XRP is one of 45 digital assets available on this platform.	https://www.sesocio.com/criptomonedas
SFOX	Trading Platforms/ Financial Services	No	XRP is not among the 24 digital assets available on this platform.	https://www.sfox.com/cryptocurrency-markets/
Shapeshift	Trading Platforms/ Financial Services	No	XRP is one of hundreds of digital assets available on this platform.	https://beta.shapeshift.com/assets/XRP
Staxe	Trading Platforms/ Financial Services	No	There does not seem to be any link between Staxe and XRP. This crowdfunding and event management company is in a private beta phase that allows customers to sponsor events through the purchase of NFTs.	https://staxe.io/; https://medium.com/staxe; https://staxe.events/events https://www.google.com/search?q=%22staxe%22+xrp&biw=1280&bih=609&ei=L3aEYcSbGtHosAf90p7IDg&oq=%22staxe%22+xrp&gs_lcp=Cgdnd3Mtd2l6EAMyBwgAEEcQsAMyBwgAEEcQsAMyBwgAEEcQsAMyBwgAEEcQsAMyBwgAEEcQsAMyBwgAEEcQsAMyBwgAEEcQsANKBAhBGABQlBZY-xZgsxhoAnACeACAAcABiAHAAZIBAzAuMZgBAKABAcgBCMABAQ&sclient=gws-wiz&ved=0ahUKEwiE7_Si9__zAhVRNOwKHX2pB-kQ4dUDCA4&uact=5;
techbureau	Trading Platforms/ Financial Services	No	XRP is not among at least 13 digital assets listed on Techbureau's digital asset trading platform, Zaif.	https://techbureau.jp/faq/; https://coinmarketcap.com/exchanges/zaif/

Unocoin	Trading Platforms/ Financial Services	No	XRP is one of 30+ digital assets available on this platform.	https://coinmarketcap.com/exchanges/unocoin/
Uphold	Trading Platforms/ Financial Services	No	Uphold supports trading of 27 currencies, 65 digital assets (including XRP), 50 stocks, and 4 precious metals.	https://uphold.com/en-us; https://blog.uphold.com/xrp-is-now-live-on-uphold
VegaProtocol	Trading Platforms/ Financial Services	No	Vega is a network protocol for trading margined financial products that received funds from Xpring (and may therefore be considered "Products Enabled by Ripple" according to Professor Adriaens' criteria). Vega has currently launched a testnet that facilitates trading Ropsten assets on an Ethereum bridge. It promises eventually to support the use of any digital asset as collateral.	https://www.businesswire.com/news/home/20191002005304/en/Vega-Raises-5-Million-to-Develop-Decentralized-Derivatives-Protocol; https://vega.xyz/about/
Young-Platform	Trading Platforms/ Financial Services	No	XRP is one of 23 digital assets available to trade on this platform.	https://youngplatform.com/en/exchange/
ZB	Trading Platforms/ Financial Services	No	Professor Adriaens' criteria state that only companies founded after Ripple's incorporation should be considered. In Appendix D, Adriaens lists a founding date prior to 2012.	Expert Report of Peter Adriaens, October 4, 2021 at 64.
ZebPay	Trading Platforms/ Financial Services	No	XRP is one of 52 digital assets available on this platform.	https://zebpay.com/in/buy-cryptos/

Agoric Systems LLC	Blockchain Technology	No	Though it received some funding from Xpring (and may therefore be considered "Products Enabled by Ripple" according to Professor Adriaens' criteria), the company's technology is "blockchain agnostic," and its tech stack does not include any XRP Ledger related endpoints or protocols.	https://www.coindesk.com/markets/2019/05/13/ripples-xpring-outlier-ventures-back-4-million-raise-for-agoric/; https://agoric.com/tech/
Bluzelle	Blockchain Technology	No	Projects that involved XRP Ledger integration appear to have existed in its early stages, but the XRP Ledger is not core to its current functioning since it uses Tendermint as its consensus engine.	https://www.allcryptowhitepapers.com/bluzelle-whitepaper/; https://docs.bluzelle.com/developers/technology
BRD	Blockchain Technology	No	This wallet supports 70+ digital assets. BRD, which raised $54.8 million between 2015 and 2019 according to Crunchbase, did receive a $750,000 investment from Xpring in 2019, and BRD discussed joint marketing efforts with Ripple at that time. Although XRP support was added four years after BRD was founded, its XRP-related efforts may therefore be considered "Products Enabled by Ripple" according to Professor Adriaens' criteria.	https://brd.com/blog/Ripple-Partnership; https://www.crunchbase.com/organization/brd/company_financials

Chainalysis	Blockchain Technology	No	Chainalysis' core product is a blockchain tracing tool to enable investigators and compliance personnel to trace funds over various blockchains; Chainalysis claims to be able to trace or monitor "ALL cryptocurrency assets, representing over $400 billion worth of transactions per month." Thus, neither XRP nor the XRP Ledger are core to its business model.	https://www.chainalysis.com/
Cryptonator	Blockchain Technology	No	XRP is one of at least seven digital assets supported by this "all-in-one online Bitcoin wallet."	https://www.cryptonator.com/
Edge	Blockchain Technology	No	This platform supports 31 assets and did not include XRP until June 2018. It raised $2.1 million of its total of $2.5 million in equity investment between 2014 and 2016, over a year before XRP was supported.	https://edge.app/?af=google-com; https://edge.app/blog/edge-wallet-monero-ripple-xrp/
Ellipal	Blockchain Technology	No	This wallet supports "41 Blockchains and 10,000+ Tokens."	https://www.ellipal.com/
Exodus	Blockchain Technology	No	Exodus supports 152 digital assets, including XRP.	https://www.exodus.com/desktop/; https://www.crunchbase.com/organization/exodus-052e/company_financials
FlareFinance/ Flare-Networks	Blockchain Technology	Yes	Spark, the native token of the Flare Network, was created through a utility fork of the XRP Ledger. Ripple made a payment to Flare Networks of $95,160.30 on December 24, 2020, with the description, "Flare Networks Limited - follow-on investment	https://flare.xyz/the-flare-network/; Ripple. Cash Accounts Ripple Labs all years GL report (2014-2020). (RPLI_SEC 1102015)

			in ordinary shares." This investment may classify Flare as "Products Enabled by Ripple" according to Professor Adriaens' criteria.	
Harbor	Blockchain Technology	No	The company that created the now-defunct Harbor wallet (SecureBlockchains) is different from Harbor (the BitGo-acquired company related to the URL provided). It was not possible to identify any venture capital funding received by SecureBlockchains on Crunchbase.	https://twitter.com/securebc?lang=en; https://www.bitgo.com/newsroom/press-releases/harbor-acquisition
Ledger	Blockchain Technology	No	Ledger is primarily known for its hardware wallet which supports "1,800+ coins and tokens," but also allows purchase and trade of digital assets via partner exchanges including Changelly. XRP was first supported on the wallet product in 2017, while the capability to purchase and trade XRP via partner exchanges apparently became available in 2021.	https://www.ledger.com/ledger-live; https://www.ledger.com/ledger-announces-xrp-support-on-nano-s-and-blue https://m.facebook.com/Ledger/photos/a.802170596506829/3849921431731715/?type=3&source=54
Polysign	Blockchain Technology	No	Polysign uses a proprietary (non-XRP Ledger) blockchain custody solution that works for different digital assets.	https://www.polysign.io/

R3	Blockchain Technology	No	None of the 14 case studies profiled on its website feature any use case involving XRP or the XRP Ledger.	https://www.r3.com/case-studies/
STYRA	Blockchain Technology	No	STYRA was shut down in 2020. The URL provided by Professor Adrians (styra.com) links to the wrong company (the proper URL should have been styra.co, which is now a defunct website).	https://www.startbase.com/organization/styra-technologies-ug/
Trastra	Blockchain Technology	No	Trastra offers both a digital asset wallet and payment cards. The Trastra wallet supports seven digital assets including XRP.	https://trastra.com/faq/trastra-account/can-i-use-other-cryptocurrencies-in-my-trastra-account/
Azimo	Money Transfer	No	Enables payments over hundreds of payment corridors, and serves 200+ countries, but had just one ODL corridor in 2020. Professor Adriaens' criteria state that only companies founded after Ripple's incorporation should be considered. In Appendix D, Adriaens lists a founding date prior to 2012. Due to ODL incentives received, this company may be considered "Products Enabled by Ripple" according to Professor Adriaens' criteria.	https://azimo.com/en; ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162; Rebuttal report Section 3, Table 7.

MoneyMatch	Money Transfer	No	Enables payments over hundreds of payment corridors; serves 42 countries. No ODL volume in 2020 on this platform based on ODL documents reviewed. Due to ODL incentives received, this company may be considered "Products Enabled by Ripple" according to Professor Adriaens' criteria.	https://transfer.moneymatch.co/; ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162; Rebuttal report Section 3, Table 7.
MoneyTap	Money Transfer	No	MoneyTap uses xCurrent, a Ripple software product which is distinct from the XRP Ledger. It does not "leverage" the XRP Ledger. Ripple owns 33% of the company, which was started as a joint venture between Ripple and SBI (a Japanese financial services company), so it may be considered "Products Enabled by Ripple" according to Professor Adriaens' criteria.	https://www.ledgerinsights.com/ripple-owns-third-sbi-money-tap-blockchain-payments/; https://www.coindesk.com/markets/2020/10/29/ripple-to-invest-in-japans-sbi-subsidiary-moneytap/
SendFriend	Money Transfer	Maybe	Website is currently not functional, but an archived version of the page advertises sending money using blockchain technology and lists Ripple as a partner. It is unclear whether this business enabled non-ODL payment corridors, so it is difficult to determine whether XRP or the XRP Ledger might be or might have been core to its business. SendFriend had one ODL corridor in 2020 according to ODL documents reviewed. Due to ODL incentives received, this company may be considered "Products	https://ripple.com/insights/sendfriend-uses-on-demand-liquidity-to-save-customers-up-to-80-in-remittance-fees/; https://web.archive.org/web/20201111230410/https://www.sendfriend.io/; https://www.sendfriend.io/; ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162; Rebuttal report Section 3, Table 7.

			Enabled by Ripple" according to Professor Adriaens' criteria.	
TransferGo	Money Transfer	No	Enables payments through 40+ payment corridors, serving 66 countries. TransferGo did not have any ODL volume in 2020 based on ODL documents reviewed. Professor Adriaens' criteria state that only companies founded after Ripple's incorporation should be considered. In Appendix D, Adriaens lists a founding date prior to 2012. Due to ODL incentives received, this company may be considered "Products Enabled by Ripple" according to Professor Adriaens' criteria.	www.transfergo.com/en-gb; ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162; Rebuttal report Section 3, Table 7.
Viamericas	Money Transfer	No	Serves 50+ countries, and had two ODL corridors in 2020 based on ODL documents reviewed. Professor Adriaens' criteria state that only companies founded after Ripple's incorporation should be considered. In Appendix D, Adriaens lists a founding date prior to 2012. Due to ODL incentives received, this company may be considered "Products Enabled by Ripple" according to Professor Adriaens' criteria.	Expert Report of Peter Adriaens, October 3, 2021 at 64 and Appendix D; https://corporate.viamericas.com/about/; ODL transaction volume records: RPLI_SEC 0300926, RPLI_SEC 0301032, RPLI_SEC 0533162; Rebuttal report Section 3, Table 7.